AMERICAN

RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, *Editor.*

ASSISTANT EDITORS:

JAMES T. HODGE, *For Mining and Metallurgy.*
CHARLES T. JAMES, *For Manufactures and the Mechanic Arts.*
M. BUTT HEWSON, *For Civil Engineering.*

SATURDAY, AUGUST 24, 1850.

Second Quarto Series, Vol. VI., No. 34.---Whole No. 749, Vol. XXIII.

ESTABLISHED IN 1831.

NEW-YORK:

PUBLISHED WEEKLY, BY

JOHN H. SCHULTZ & CO.

Room 12, Third Floor,

No. 136 Nassau Street.

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No. 139 Nassau Street.

IRON BRIDGES, BRIDGE & ROOF BOLTS, etc. STARKS & PRUYN, of Albany, New York, having at great expense establishe. a manufactory with every facility of Machinery for Manufacturing Iron Bridges, Bridge and Roof Bolts, together with all kinds of the larger sizes of Screw Bolts, Iron Railings, Steam Boilers, and every description of Wrought Iron Work, are prepared to furnish to order, on the shortest notice, any of the above branches, of the very best of American Refined Iron, and at the lowest rates.

During the past year, S. & P. nave furnished several Iron Bridges for the Erie Canal, Albany Basin, etc. —and a large amount of Railroad Bridge Bolts, all of which have given the most perfect satisfaction.

They are permitted to refer to the following gentlemen:

Charles Cook, Nelson J. Beach, Jacob Hinds,	Canal Commissioners of the State of New York.
Willard Smith, Esq.,	Engineer of the Bridges for the Albany Basin.
Messrs. Stone & Harris,	Railroad Bridge Builders, Springfield, Mass.
Mr. Wm. Howe,	
Mr. S. Whipple,	Engineer & Bridge Builder, Utica, N. Y.

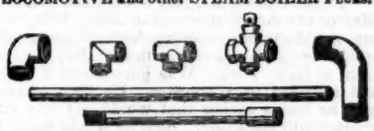
January 1, 1849.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ¼ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T's, L's, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by

MORRIS, TASKER & MORRIS.

Warehouse S. E. Corner of Third & Walnut Streets,

PHILADELPHIA.

To Railroad Companies, etc.

The undersigned has at last succeeded in constructing and securing by letters patent, a Spring Pad-lock which is secure, and cannot be knocked open with a stick, like other spring locks, and therefore particularly useful for locking Cars, and Switches, etc.

Companies that are in want of a good Pad-lock, can have open samples sent them that they may examine and judge for themselves, by sending their address to

C. LIEBRICH,
46 South 8th St., Philadelphia.

November 3, 1849. 6m*

Mattewan Machine Works.

THE Mattewan Company have added to their Machine Works an extensive LOCOMOTIVE ENGINE department, and are prepared to execute orders for *Locomotive Engines* of every size and pattern–also *Tenders, Wheels, Axles,* and other railroad machinery, to which they ask the attention of those who wish such articles, before they purchase elsewhere.

STATIONARY ENGINES, BOILERS, ETC., Of any required size or pattern, arranged for driving *Cotton, Woollen, or other Mills,* can be had on favorable terms, and at short notice.

COTTON AND WOOLLEN MACHINERY, Of every description, embodying all the modern improvements, second in quality to none in this or any other country, made to order.

MILL GEARING,

Of every description, may be had at short notice, as this company has probably the most extensive assortment of patterns in this line, in any section of the country, and are constantly adding to them.

TOOLS.

Turning Lathes, Slabbing, Plaining, Cutting and *Drilling Machines,* of the most approved patterns, together with all other tools required in machine shops, may be had at the Mattewan Company's Shops, Fishkill Landing, or at 66 Beaver street, New York.

WM. B. LEONARD, *Agent.*

RAILROAD India-rubber Springs.

IF any Railroad Company or other party desires it, the NEW ENGLAND CAR COMPANY will furnish India-rubber Car Springs made in the form of washers, with metalic plates interposed between the layers, or in any other form in which they can be made; in all cases guaranteeing the right to use the same against any and all other pretended rights or claims whatsoever.

F. M. Ray, 98 Broadway, New York.
E. CRANE, 99 State Street, Boston.

1849.

MACHINE WORKS OF ROGERS KETCHUM & GROSVENOR, *Patterson, N. J.* The undersigned receive orders for the following articles manufactured by them of the most superior description in every particular. Their works being extensive, and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and dispatch.

Railroad Work.—Locomotive Steam Engines and Tenders; Driving and other Locomotive Wheels, Axles Springs and Flange Tires; Car Wheels of Cast Iron a variety of patterns and chills; Car Wheels of Cast Iron with wrought tires; Axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and millwright work generally, hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
Patterson, N.J. or 74 Broadway. New York.

THE NEWCASTLE MANUFACTURING Co. continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack Screws, Wrought Iron Work and Brass and Iron Castings, of all kinds connected with Steamboats. Railroads, etc.; Mill Gearing of every description; Cast Wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,
President of the Newcastle Manuf. Co.

DEAN, PACKARD & MILLS,

MANUFACTURERS OF ALL KINDS OF

RAILROAD CARS,

SUCH AS

PASSENGER, FREIGHT AND CRANK CARS

— ALSO —

SNOW PLOUGHS AND ENGINE TENDERS OF VARIOUS KINDS.

CAR WHEELS and AXLES fitted and furnished at short notice; also, STEEL SPRINGS of various kinds; and

SHAFTING FOR FACTORIES.

☞ *The above may be had at order at our Car Factory*

REUEL DEAN,
ELIJAH PACKARD,
ISAAC MILLS,
} SPRINGFIELD, MASS.

1y48

Iron Safes.

FIRE and Thief-proof Iron Safes, for Merchants, Banks and Jewelers use. The subscriber manufactures and has constantly on hand, a large assortment of Iron Safes, of the most approved construction, which he offers at much lower rates than any other manufacturer. These Safes are made of the strongest materials, in the best manner, and warranted entirely fire proof and free from dampness. Western merchants and the public generally are invited to call and examine them at the store of E. Corning & Co., sole agents, John Townsend, Esq., or at the manufactory.

Each safe furnished with a thief-detector lock, of the best construction.

Other makers' Safes repaired, and new Keys and Locks furnished at the shortest notice.

H. W. COVERT
cor. Steuben and Water sts. Albany

August 24, 1848.

PHILADELPHIA CAR MANUFACTORY,

CORNER SCHUYLKILL 2D AND HAMILTON STS.,
SPRING GARDEN, PHILADELPHIA CO., PA.

Kimball & Gorton,

Having recently constructed the above works, are prepared to construct at short notice all kinds of

RAILROAD CARS, Viz:

Passenger Cars of all classes—Open and Covered Freight and Express Cars—Coal Cars—Hand Cars & Trucks of all descriptions.

They are also prepared to furnish Chilled Wheels of any pattern. Car Wheels & Axles fitted and furnished. Snow Ploughs and Tenders made to order. Steel and other Springs always on hand.

All orders will be filled at short notice, and upon as good terms as at any other establishment in the country.

Omnibuses from the Exchange run within one square of the manufactory every 10 minutes during the day.

Philadelphia, June 16, 1849. 1y25

Patent Self-clinching Railroad Spikes.

These spikes have been in use upon various roads for several years, and have met with universal approval by Engineers. They drive in the manner shown, turning themselves, and are therefore not liable to work loose. They will prove of great value to secure the chair.

We are also manufacturing railroad spikes, hook and flat head; wrought chairs, clamps, etc., of superior quality, and are prepared to contract for any pattern or weight upon favorable terms.

SMITH & TYSON,
25 South Charles st., Baltimore Md.

P. H. Griffin,

Corner of Steuben and James Sts. Albany, N.Y.,

CONTINUES to manufacture copper flues for locomotive boilers, brewers' coppers, stills, tanner heaters, etc. Copper work in general, at the shortest notice. He has constantly on hand brass cocks, brass valves, copper pumps of every variety.

Orders promptly attended to. 1y14

Patent India Rubber Steam Packing.

THIS article, made by the subscriber, who alone is authorised to make it, is warranted to stand as high a degree of heat *as any that has been or can be made by any person*—and is the article which has made the reputation of India Rubber Steam Packing and the demand therefor. A large assortment of all thicknesses requisite for any description of engines, steam pipes, valves, etc., constantly on hand and for sale by the manufacturer and patentee, who will give every information regarding its properties, mode of use, etc. at the warehouse. JOHN GREACHEN, JR.,

98 Broadway, opposite Trinity Church.

New York, October, 1849.

Fire Brick.

THE Subscribers have constantly on hand Rafford's Stourbridge, Oak Farms Stourbridge, Lister, Wortley, Red and White Welsh Fire Bricks, common and fancy shapes. Also,

ROOFING SLATES,

from the best Welch quarries, and of all sizes. Also

COAL,

of all kinds—Liverpool Orrell and Cannel, Scotch, New Castle, Pictou, Sidney, Cumberland, Virginia, and all kinds of Anthracite coals. Also,

Pig Iron, Salt, etc., etc., for sale at the lowest market price. Apply to

SAMUEL THOMPSON & NEPHEW,
275 Pearl and 43 Gold Sts., New York.

November, 23, 1849.

NEW YORK IRON BRIDGE COMPANY.

The Bridges manufactured by this Company having been fully tested on different Railroads, by constant use for more than two years, and found to answer the full expectations of their most sanguine friends, are offered to the public with the utmost confidence as to their great utility over any other Bridge now known.

The plan of this Bridge is to use the iron so as to obtain its greatest longitudinal strength, and at the same time it is so arranged as to secure the combined principles of the *Arch, Suspension and Triangle*, all under such controlling power as causes each to act in the most perfect and secure manner, and at the same time impart its greatest strength to the whole work.

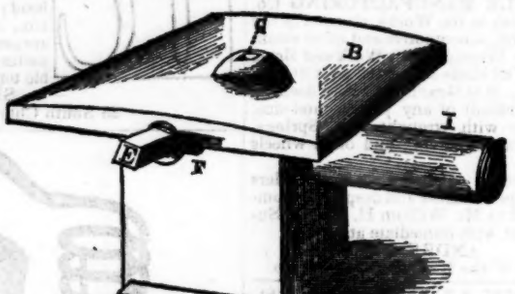
The New York Iron Bridge Company are prepared to furnish large quantities of Iron Bridging for Railroad or other purposes, at short notice, and at moderate prices.

Models, and pamphlets giving full descriptions of the above Bridge, with certificates based on actual trial from undoubted sources, will be found at the office of the Company, 39 Jauncey Court, Wall st., or of W. Rider & Brothers, 19 *Nassau Street*, where terms of contract will be made known, and where orders are solicited.

M. M. WHITE,
Agent for the Company.

August 29, 1849.

E. Harris' Patent Rotary Blacksmith Tuyere.



LETTERS Patent were issued January 9, 1849, to E. Harris, of Springfield, for an Improved Rotary Blacksmith Tuyere. Since that time there have been some hundreds put in operation, giving satisfaction and full proof of superiority over all others.

This Tuyere is so arranged that by one movement it can be changed from the largest work to the smallest; at the same time the fire is changed in proportion, thereby making a great saving in coal. Words cannot convey the full merits of this Tuyere; nor is it deemed necessary to speak in disparagement of other Tuyeres, as every smith is capable of judging for himself, and will give merit where merit is due.

I will simply say that there has not been a single instance where I have had my Tuyere put in use but it has given full satisfaction, and is recommended by all who have used them, as being superior to any other ever introduced. I would invite all to give them a trial; and the names of those using them being given, I hope it may induce others to try them; they recommend themselves.

Western Railroad Shop,	Springfield,	Mass.
" "	Pittsfield,	"
Connecticut val."	Springfield	"
" "	N. Hampton	"
Hartford "	Hartford,	Conn.
New Haven "	New Haven	"
Norwich and Worcester,	Norwich	"
N. York and N. Haven,	New Haven	"
Saratoga and Whitehall,	Saratoga,	N. Y.
Vermont Central,		
Hudson and Berkshire,	Hudson,	
L. Kingsley,	Canton,	Mass.
Hadley Falls Co.	Ireland,	W. Springfield, Mass.
Sidney Patch,		Boston, "
Ames Manuf. Cor.,		Chickopee, "
American Machine w'ks,		Springfield "
Dean, Packard & Mills		" "
G. Frank Bradley,		N. Haven, Conn.
Andrew Baird,		" "
Collis & Lawrence		" "
Slate & Brown,		Windsor Locks,
Gage,		Nashua, N. H.
Machine shop,		Manchester, "
Louis F. Lanney,		Baltimore, Md.
J. H. Baerdid,		179 Chambers st. N. Y.
J. Fanning		Rochester, "
G. W. Hunt		41 Gold st. "
Chamberlain & Waldo,		"
P. S. Burges, carriage maker,		"
Samuel Miller,		"
J. Leggett,		Steverson falls, "
J. E. Harris,		Hillsdale, "
John L. Graham,		Albany, "
David Dalsell,		South Egremont, Mass.
Roys & Wilcock,		Berlin, Conn.

Agents for the sale of Tuyeres:
B. B. Stevens in New York and Connecticut.
A. J. VanAllen has the Agency for the Western and Southern States, and is now travelling through those States. Any communication addressed to the patentee will receive prompt attention.

E. HARRIS, Patentee,
Springfield, Mass.

November 23, 1849.

Railroad Lanterns.

COPPER and Iron Lanterns for Railroad Engines, fitted with heavy silver plated Parabolic Reflectors of the most approved construction, and Solar Argand Lamps; manufactured by

HENRY N. HOOPER & CO.,
No. 24 Commercial St. Boston.

August, 16, 1849. 6m33

Gas Fixtures.

FIXTURES for Burning Gas for Lighting Public Buildings, Private Dwellings, Stores and Factories, manufactured by the subscriber in great variety. Orders by Mail, or left at the Factory on Causeway street, will be promptly attended to.

HENRY N. HOOPER & CO.

Boston, March 23, 1850. 6m13

F. M. Ray's Patent India-rubber Car Springs.

India-rubber Springs for Railroad Cars were first introduced into use, about two years since, by the inventor. The New England Car Company, now possesses the exclusive right to use, and apply them for this purpose in the United States. It is the only concern that has tested their value by actual experiment, and in all arguments in favor of them, drawn from experience of their use, are in those cases where they have been furnished by this company. It has furnished every spring in use upon the Boston and Worcester road, and, in fact, it has furnished all the springs ever used in this country, with one or two exceptions, where they have been furnished in violation of the rights of this company; and those using them have been legally proceeded against for their use, *as will invariably be done in every case of such violation.*

The Spring formed by alternate layers of India-rubber discs and metal plates, which Mr. Fuller claims to be his invention, was invented by Mr. Ray in 1844.—In proof of which we give the deposition of Osgood Bradley, of the firm of Bradley & Rice, of Worcester, Mass., car manufacturers, and men of the highest respectability. In this deposition, in relation to the right of parties to use these springs, he says:

"I have known Mr. Ray since 1835. In the last of May or the commencement of June, 1844, he was at my establishment, making draft of car trucks. He staid there until about the first of July, and left and went to New York. Was gone some 8 or 10 days, and returned to Worcester. He then on his return said he had a spring that would put iron and steel springs into the shade. Said he would show it to me in a day or two. He showed it to me some two or three days afterwards. It was a block of wood with a hole in it. In the hole he had three pieces of India-rubber, with iron washers between them, such as are used under the nuts of cars. Those were put on to a spindle running through them, which worked in the hole. The model now exhibited is similar to the one shown him by Ray. After the model had been put into a vice, witness said that he might as well make a spring of putty. Ray then said that he meant to use a different kind of rubber, and referred to the use of *Goodyear's Metallic Rubber*, and that a good spring would grow out of it." There are many other depositions to the same effect.

The history of the invention of these springs, together with these depositions, proving the priority of the invention of Mr. Ray, will be furnished to all interested at their office in New York.

This company is not confined to any particular form in the manufacture of their springs. They have applied them in various ways, and they warrant all they sell.

The above cut represents precisely the manner in which the springs were applied to the cars on the Boston and Worcester road, of which Mr. Hale, President of this road speaks, and to which Mr. Knevitt refers in his advertisement. Mr. Hale immediately corrected his mistake in the article quoted by Mr. Knevitt, as will be seen by the following from his paper of June 8, 1848. He says:

India-rubber Springs for Railroad cars.—"In our paper yesterday, we called attention to what promises to be a very useful invention, consisting of the application of a manufacture of India-rubber to the construction of springs for railroad cars. Our object was to aid in making known to the public, what appeared to us the valuable properties of the invention, as they had been exhibited on trial, on one of the passenger cars of the Boston and Worcester railroad. As to the origin of the invention we had no particular knowledge, but we had been informed that it was the same which had been introduced in England, and which had been subsequently patented in this country; and, we were led to suppose that the manufacturers who have so successfully applied this material, in the case to which we referred had become possessed of the right to use that patent. It will be seen from the following communication, addressed to us by a member of the company, by which the Worcester railroad was supplied with the article upon which our remarks were based, that we were in an error, and that the springs here introduced are an American invention, as well as an American manufacture. How far the English invention may differ from it we have had no opportunity of judging."

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SECOND QUARTO SERIES, VOL. VI., No. 34] SATURDAY, AUGUST 24, 1850. [WHOLE No. 749, VOL. XXIII.

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American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & Co., 136 NASSAU ST.

Saturday, August 24, 1850.

American Iron Manufacture.

MEMORIAL.

To the Senate and House of Representatives of the United States of America, in Congress assembled:

Continued from page 515.

If this business has been overdone in Great Britain the evil consequences have fallen upon the manufacturers. The public has enjoyed an immense advantage in the abundance of a material so important in every department of industry as iron. The fluctuations in price which have ensued from this large production have been of late years so great as to cast in the shade all other commercial changes of price. The range of these fluctuations in pig iron during the last ten years is from £1 18s to £5 12s 6d, and in bar iron £4 10s to £13, or about 200 per cent.

In one extremity of this fluctuation, British iron becomes too high to import under a revenue duty; in the other too low to admit of home production. In the one extreme we cannot afford to use it; in the other, it paralyses our efforts to manufacture for ourselves.

The legislation asked by American manufacturers deserves not the odium so frequently heaped upon it. We know that we can furnish to the consumers of this country a million of tons of iron cheaper and better than it can be had abroad. We ask for defence against those commercial fluctuations which occur in Great Britain, from causes wholly originating there, and which, while they thrust down the prices of iron there far below the cost of making, throw large and irregular quantities into our ports, disturbing the regular course of industry here; breaking down our markets and carrying ruin, at each such invasion, into many establishments. If we ask aid against such irregularities, it is no more than we should be obliged to do, if the manufacture in the United States, were as greatly developed as in Great Britain, and enjoying, in all respects, equal advantages. If that were the case, each of the equally powerful competitors, would seek to relieve their home markets in seasons of depressions, by thrusting the rejected surplus upon his rival; and each would seize the opportunity of high prices in the other to make large exports, until both markets, unable to maintain any high prices to compensate for unfavorable periods, would sink into hopeless depression, and the business perish or be greatly impaired. Against such consequences both would appeal to their respective governments for protection, not for monopoly; for that security against ruinous fluctuations, and that regularly in sales, indispensable to the success of industry. Competitors at home can observe their mutual progress, and take their measures of defence in time, but that competition which comes from abroad, cannot be watched, nor preparation made for its sudden inroads. If the British manufacturer is prevented from flooding our markets at less than the average upon which his business thrives, a mere revenue duty will be ample protection against the great advantages he enjoys, of employing labor at less than half the cost paid in the United States.

Among those most deeply interested in the vigor and prosperity of our iron manufactures are the farmers who furnish food, and the planters and manufacturers who furnish clothing, for our operatives in iron. We cannot here fully unfold the chain of mutual interests which binds all branches of industry together, nor exhibit its strength, and the importance of preserving it unbroken. We ask attention to only a few prominent facts. When the ports of Great Britain were opened to our agricultural products, it was fondly hoped that our farmers would find there an unlimited market for wheat and maize. At the present moment, however, these are very little higher in Liverpool than in Philadelphia, and the pressure of any increased export would sink prices there below ours. At the present rates of iron and flour in Liverpool, the flour made from an acre of good wheat will about exchange for a ton of pig iron, and pay for its transportation to this country. If we take the product of the acre at four barrels, worth now in our market $18 or $20, it will exchange here for a ton of pig iron of far superior quality.

But farmers who feed the manufacturers of iron in the United States do much better than exchanging the product of an acre for a ton of pig iron.—A furnace yielding 4,000 tons of pig iron gives employment to two hundred laborers, each of whom consumes annually fifty dollars worth of food. Of this but one-tenth is expended for bread; the remainder is consumed in the shape of mutton, veal, pork, beef, poultry, potatoes, turnips, beets and other products of garden, field and orchard; the production of which in great variety is an accompaniment of all good husbandry and profitable farming. To import 4,000 tons of pig iron requires the product of 4,000 acres of wheat. But in our home markets the product of 500 acres will exchange for 4,000 tons of pig iron. An acre of potatoes, the cultivation of which does not exceed that of Indian corn, will exchange for eight tons of pig iron in the markets of Philadelphia. The farmer who, with 100 acres of wheat, prefers the foreign market, will receive for his crop 100 tons of pig iron, at present rates worth $2,000, whilst he who has a hundred acres of potatoes can exchange his crop at home for 800 tons of iron, worth $16,000.

Wheat sent to a distant market, which fluctuates according to the supply and demand, must be sold without reference to the cost of production, and without control of the producer for what it will bring in competiton with all the world. What the farmer sells at home is at his own price, and is sold or held according to his discretion. Well cultivated lands dependant on a foreign market may be worth from $5 to $20 per acre; those that have the full advantage of a home market are worth from $50 to $200. If the production of iron in Pennsylvania were continued in full activity for ten years, it would double the value of her own lands and make a vast contribution to the value of other lands and property beyond her boundaries.

What is applicable to the propriety of sending wheat to a distant market to be exchanged for iron, is just as true applied to the expediency of sending raw cotton to England, to be exchanged for manufactured cotton, or any other foreign goods. The cotton plantations can feed the operatives necessary to manufacture all their cotton; and such a policy would triple the value of every cotton plantation in the country. To produce this additional quantity of food would probably require no more laborers than are now employed in growing cotton. It would only require that division of labor which is as important to the success of the planter and farmer as to that of any other producer.

To manufacture 800,000 tons of iron, the present product of the United States, gives support to upwards of 250,000 persons, to whom at least twenty

millions in wages must be paid. Of this sum $4,000,000 will be expended in coarse cotton fabrics for clothing and furniture, $3,000,000 for woolens, and $3,000,000 for other items of clothing and domestic comfort. The $20,000,000 earned by the operatives in iron will thus be diffused over the whole country, giving vigor and activity to numberless branches of industry. The South will furnish cotton, sugar and rice; the Middle States bread, potatoes and meat, and the Northern States the products of the loom; whilst thousands of tailors, hatters, shoemakers and other tradesmen, find constant employment in ministering to the necessities of the makers of iron, consuming themselves an additional quantity of food and clothing by a demand distributed in like manner.

It is said the domestic cost of manufacturing iron is too high to be sustained by any sound legislation, or to warrant any large consumption. We reply that our whole supply cannot be imported as cheaply as we manufacture it; tor the reason. that the cost is not the only controlling element of price, and that our large demands, if made upon the British market, would quickly enhance prices far beyond the domestic rates. We must, therefore, manufacture at home at least three-fourths of our consumption; and, to do this, our manufactures must be maintained in full vigor by remunerating prices and a steady market. Iron costs twice as much to manufacture here as in Great Britain; because employers here pay double, for wages for labor. The laborers of the United States can be fully emplyed at the high wages which prevail here, and we are not prepared to say that these wages are more than a just compensation for labor. It is certain that in most countries where less rates are paid a large mass of the population is in a state of destitution, and sunk to the lowest grade of human existence. In this country, where physical well-being is so easily attainable, should we not feed, clothe and lodge our laborers in comfort, and keep them out of the poor house? The wages now paid are only sufficient for this, and to enable the prudent to make some savings for sickness, reverses and old age. We are not, therefore, in favor of any system which contemplates a reduction of wages, and a consequent degradation of our working men. We believe that the consumption of every country is regulated by the wages of the laborer: if he is liberally paid he will consume freely. The mass of the consumers in a country must be laborers; and, when these are able to exact a fair compensation for their toil, all prices must soon be adjusted upon the same scale. The manufacturer will demand for his product a price proportioned to the cost of labor; the farmer must do the same, and so on through the whole circle of industry. The laborer himself contributes to sustain these prices by a consumption proportioned to his income. All persons concerned in this adjustment being in a condition to ask and obtain justice, the whole system of consumption will be regulated by the rights of all and the means of all. In this state of things the largest possible consumption can take place; because it will be the result of a fair exchange. The stimulus to exertion and increased production will be complete, because every product of industry can be exchanged, at a fair rate, for other products. If no disturbing cause intervenes, the production and consumption need have no other limit than the physical ability of the producing parties and their mutual wants.

In full activity of business in the United States our consumption of iron has reached 100 lbs. for each person. If no disturbing cause had interfered, we should now be consuming 200 lbs. Our farmers could amply feed the laborers needful to such an increased production, and our machinists and mechanics could soon, under the operation of such a system, work up and prepare it for consumption. Every branch of industry would have all the rest for customers; and if all measured their values by the same scale, all would be rewarded according to their industry. It is well known that low prices of iron are no boon to those who buy to work up and sell, and that the seasons of highest prices are often periods of largest consumption. In 1847, pig iron ranged above 30 dollars per ton in this country, yet at these high prices the whole stock of that year, estimated at 750,000 tons, was consumed; all the old stocks and remnants were swept off, and it was perfectly apparent, to those well acquainted with the state of the market, that there was an actual deficiency of supply to the extent of very nearly, if not quite, 100,000 tons. In 1849, with pig iron at 20 dollars and bar iron at 50 dollars, the consumption of the country has probably fallen off one-third and the production one-half. With this diminished production domestic stocks are now accumulating rapidly. Of the amount imported this year a very large proportion yet remains in the market. The quantity of iron now on hand in this country is estimated at 300,000 tons; and of this one-half is British. The manufacturers of castings, of machinery and hardware, now find that the consumption of their articles is checked, and that the low price of their raw material is not only no benefit, but a positive evil, and they are ready, equally with the makers of iron, to ask for a remedy. A similar result will be found by comparing all the periods of high and low prices.

To be continued.

Nicaragua Route.

Below we give a portion of a letter from Mr. Squier, United States Charge d'Affairs to Central America, describing the River San Juan, which it has been proposed to make a part of a line of water communication across the Isthmus. It will be seen that Mr. Squier's opinion is entirely adverse to the practicability of this route for large vessels. If he is correct, and he gives us the result of his own experience, it puts an end to the magnificent expectations entertained in favor of this route.

The progress that is now making in our knowledge of the Isthmus shows how little has formerly been known of that region. A year since and we had the most glowing accounts of the entire feasibility of a railroad across the continent at Panama. A survey had been made, showing a good line and easy grades. Estimates of its cost, with all the minuteness usual at the commencement of a similar work, were presented to the public. A year has elapsed, and nothing or next to nothing has been accomplished. This is to be undoubtedly attributed to the difficulties of the undertaking, rather than to any want of means or disposition to push the work. We are yet in the infancy of our knowledge of that portion of the country, and caution dictates that our people should proceed slowly if they would safely in the opening of a canal or railroad through it.

The river San Juan, concerning which so much has been written, is certainly a magnificent stream. But its capabilities have been greatly exaggerated. It is the only outlet of the two lakes above mentioned, flowing from the southeastern extremity of Lake Nicaragua, nearly due east to the Atlantic. Its length has been variously estimated at from 79 to 104 miles. The first estimate is certainly too little. Mr. Baily calculated it at 90 miles, and he is probably not far from correct. The body of water which flows through this stream is at all times considerable, but it varies greatly in amount with the seasons of the year. It is greatest during what is termed the "rainy season" in the interior, that is to say from May to November, at which period the body of water is nearly doubled. To this circumstance, in a great degree, may be ascribed the wide difference in the statements of the depth and capacity of the river made by different individuals.

The banks of the San Juan, from the Fort of San Carlos, at the outlet of the lake, to the *Rapides del Toro*, a distance of twenty miles, are generally low, and covered with palms, canes, and a species of high coarse grass, called *gamalote*. The river here sometimes overflows its shores; which, for a considerable distance back, seem to be flat and swampy. From the port of San Juan upwards, half way to the point of the divergence of the Colorado, a distance of eighteen miles, the banks of the river present a corresponding appearance. At the mouth of the San Carlos, there are hills two thousand feet high; and the river is much contracted. The entrance from the passage between them from the west somewhat resembles the opening of the highlands of the Hudson from the north.

The banks of the river are in some places rocky, elsewhere they are far from being as crumbing as those of the Ohio and the Mississippi, and the other rivers of the western States of the Union. This is perhaps due, to some extent, to the roots of trees and plants which penetrate and bind the earth in all directions. The bed of the river may be regarded as essentially permanent. It, nevertheless, abounds in islands; of which there are hundreds. Some of them are low, and covered with gamalote, or with canes; but most are as high as the banks of the river, and wooded in like manner.

The width of the river varies from 100 to 400 yards, and its depth 6 to 20 feet. I should estimate the average volume of water at about that of the Hudson above tide water. The bottom seems generally to be gravel. There are four considerable rapids, where the bed is rocky and the water shallow. These will be noticed hereafter in detail.—The current, from the mouth of the river to the Del Toro, is strong. With the water at a medium stage, in a light bungo, and with a stout crew of ten men, I was six days in passing from San Juan to San Carlos. The men labored hard, at the oars and setting poles, from daylight until dark each day. We passed other bungoes which had left three days before us; and our trip was regarded as one of extraordinary rapidity for the season.—From these facts some idea may be formed of the strength of the current. Bulow calculates the fall of the stream at twenty inches per mile, except at the various rapids, where it is more.

The water of the lake opposite the fort, and fronting the opening of the San Juan, is comparatively shallow, not exceeding eight or ten feet in depth, with a mud bottom for the distance of a mile and upward from the shore.

The opening of the San Juan is probably three hundred yards and upwards broad, which width the stream maintains with great uniformity to the Rio Savalos, a distance of twenty miles. For this extent, the current is slight, according to Baron Bulow not exceeding *one and a half miles the hour*. The channel is wide, and the depth of the water from three to four fathoms. The banks are low, and the back country flat and swampy. Some sluggish streams come in from both north and south but they are almost hidden by the overhanging trees.

At the Rio Savalos commences the Rapides del Toro, which are about three fourths of a mile long. The water, of course, varies in depth with the different seasons of the year. At the time of my passage, it was certainly, for the most of its extent, less than a fathom. The banks upon both sides are firm and high, and the palm gives place to other and larger trees. Bulow gives the current at 180 to 200 yards per minute, but I esteem it something more.

From this point to the Rapides Castillo is six miles. The intervening banks are high, and the land well adapted for settlement. At the Rapids considerable ridges come down the river on both sides. The rapids here are short but swift, better deserving the name of falls than rapids. Barges cannot generally ascend loaded. When they have heavy cargoes, part of the same has to be removed and carried past the falls. The boats are then tracked or pushed up against the current by main force. My barge was upwards of two hours in getting as many hundred yards. These rapids, without artificial modification, would present an obstacle to all kinds of navigation. It might be made practicable with some trouble, for small steamers, light draughts, such as are used upon some of the small western rivers.

Three or four miles below the Rapides del Castillo are the Rapides los Valos and Mico, which may, however, be regarded as one; the current here is 200 or 300 yards per minute, the bottom rough and rocky, and navigation in barges difficult. The water does not appear to be more than from four to six feet deep, for any condiderable distance. The banks correspond with those above the castle.

To the Rapids of the Machuca (the present limit of the English claim) the last, longest and worst, the river is deep and free from obstructions.

"These rapids," says Bulow, who is disposed to represent the capabilities of the river in the most

favorable light, "are worst of all; the water is more broken from running over a rocky bed; stones and rocks project above the surface for a distance of 600 yards, and great attention is necessary in passing the channel."

From this point to the San Carlos, the river is very fine, the banks high and studded with beautiful trees; the current is regular, but the depth of water variable. Bulow states the depth at from two to six fathoms. The San Carlos is a large stream, and may be ascended by bungoes to the distance of 15 or 20 miles.

From the River San Carlos to the Serapiqui, the banks are good, though not so elevated as they are higher up the stream; the current is strong but even, and the depth from 10 to 20 feet in the channel.

To the divergence of the Colorado river is a distance of 13 miles, the banks preserving their elevation to the divergence of the Juanillo, from which point they become very low; the current is regular, and the depth, according to Bulow, from 10 to 30 feet. The Colorado withdraws a large body of water from the river, which, however, continues to preserve nearly its original width to the port of San Juan. The channel for the remaining distance is studded with low islands covered generally with gamalote; the depth is very variable, ranging from four or five to ten or twelve feet, the bottom gravelly. In the dry season, bungoes pass with their loads with difficulty.

I have no hesitation in asserting that the San Juan can never be made navigable for ships of any considerable size. Small steamers, with some slight improvement in the channel, might be run without much difficulty, and this is all that can be hoped for from this stream.

In case it should be determined to open communications for ships across the continent at this point it would be necessary to cut a canal at the base of the hills parallel to the stream, which might be made to yield, at the necessary intervals, the requisite supply of water. It is probable that the river might be used, from the lake to Del Toro, though even this is not certain. I am convinced that the ground rises not very far back from the river on the north, and that stone and all the materials necessary for the construction of a canal might be obtained without much difficulty very nearly on the spot desired. These are things, however, that can only be determined from actual survey. A canal upon the southern bank, for reasons sufficiently obvious from what has been presented above, is impracticable.

Life of James Watt.

BY THE EDITOR OF THE MINING JOURNAL.

James Watt, the subject of our notice, was born at Greenock, in Scotland, in the year 1736, where he was educated at the grammar school, and at the age of sixteen apprenticed to a mathematical instrument maker, within two years after which he came to London, but subsequently returned to his native place. At the age of twenty-one we find him resident in the University of Glasgow, he having been appointed philosophical instrument maker to the College, where he remained for seven years, until the year 1764, when he established himself as an engineer, and was one of those consulted in the construction of the Caledonian Canal. It was about this period that his mind appears to have been more especially directed to the application and power of steam, arising from his having been engaged in repairing a model of a steam engine constructed on the principles of Savery, by Newcomen and Cawley, a patent for which had been taken out at so distant a period as 1705. The model belonged to the class of natural philosophy in the College, and Watt tried various experiments for its efficient repair. After having devoted nearly four years to these and subsequent investigations, we find that in 1768 he completed his first engine, which differed from that of the model by the condensation of the steam taking place in a second vessel, so that the descent as well as ascent of the piston was produced by the force of the steam, and not by atmospheric pressure, as in the engine of Newcomen. It was not, however, until 1769 that he secured his first patent, having been materially assisted, in a pecuniary point of view, by Dr. Roebuck in accomplishing his object, and effecting those several improvements to which he was prompted in the course of his experiments. It being found that the steam, in coming in contact with cold water, caused a loss of two-thirds of the fuel by condensation, Watt introduced a wooden pipe or tube instead of iron, considering the wood as a worse conductor of heat. This, however, had not not the desired effect, as the wood was found to present less resistance to the sudden changes of temperature. With a view of counteracting the obstacles which thus presented themselves, he determined on passing the steam through an iron tube without cooling the walls or outer surface, and which may indeed be said to constitute the invention of the condenser. A small air pump was also applied, which was worked by the piston, so as to get rid of the water in the condenser—this being Watt's first great improvement. His second was that of enclosing the metal tubes in wood, so as to retain the heat, and admitting the steam above and below the piston, as it required to be depressed or raised, calculating with a degree of nicety the fuel necessary for producing a certain quantum or power of steam, and the volume or quantity of cold water required to condense it. At this time, however, it is to be regretted that Watt possessed not sufficient means for extending the utility of his discoveries. About seven years afterwards, Dr. Roebuck, who had become reduced in circumstances, disposed of his interest to Mr. Matthew Boulton, of Birmingham.

Watt having thus become associated with Boulton, active steps were taken for the construction of a steam engine at their manufactory at Birmingham, which all connected with the mining interest were invited to visit, and which at the time excited much interest. Cornwall, which has made such great advances in the application of steam, and in the economy of working, whether as regards the saving of fuel or the greater power applied (and of which some comparative tables, with statistical details, will be found in our present volume), was the first duly to appreciate the advantages attendant on the improvements which had been so ably and successfully introduced.

We need hardly say, that as its advantages became more apparent, it gradually superseded the engine of Newcomen, which had been previously employed. The terms upon which the engine was supplied afford a good illustration of the superior mind and general liberality displayed by Watt and his partner. These were, that one-third only of the saving of fuel over that used by the old engine should be the price of the new one, thus at once demonstrating the confidence they entertained in the success of the latter, and which has been since that period so fully verified.

A very ingenious method was resorted to for ascertaining with precision the difference in the consumption of fuel, and as an instance of which it may be observed, that in one year alone, at the Chasewater mine, a saving of no less than £7,000 was effected in the space of twelve months in the working of three engines, which, assuming them to be of similar power, would be equal to the saving of fuel of one, or £2,333, which was the amount paid to the firm of Boulton and Watt as their proportion, being one-third of the advantages attendant on the saving.

This liberality did not, however, meet with a good return, for a combination was formed to resist payment of the dues, and which succeeded in invalidating Watt's patent. Nevertheless, Boulton and Watt succeeded in establishing a great business, and obtaining profitable results. On the whole it may be said there were advantages attendant upon the liberal policy observed by Watt and Boulton, but which is rarely followed in the present day. Too frequently have we found the expectations of the projector foiled, and the benefits which might attend the adoption of his invention or improvement completely marred, simply from the circumstance of exorbitant terms being required. Neither is it rare to find instances of want of liberality evinced on the part of those who have so much to expect from a connection formed with the capitalist, without whose aid it must in all probability lie dormant, unprofitable, and eventually be sacrificed.

An extension of Watt's patent was obtained in 1800, up to which period the engine had only been employed to raise water; and having applied himself to the consideration of the best mode whereby it might be applied to the working of mills and other objects of a like nature, he invented that which is generally termed the sun and planet motion, whereby the object was attained.

If we name these as his chief works, it is not that his industry was limited to them. Indeed his inductions and discoveries embraced a wide field of knowledge which few men exceeded; and his share in discovering the composition of water gives him a place in the annals of natural philosophy, as his numerous other labors do in those of mechanical science. He was a student to the last days of a long life, and there was no branch of literature or science in which he was not proficient.

He was a Fellow of the Royal Societies of London and Edinburgh, and the Institute of Paris also elected him one of their eight foreign associates.—James Watt died on the 25th August, 1819, aged 84 years.

Few Englishmen have ever received greater testimonies of the esteem of their fellow countrymen, and few have so well deserved them for the lasting and practical nature of the services they have performed, and from which, in his case, our latest posterity will benefit. The chisel of the sculptor, and the pen of the writer, have both at home and abroad been applied to celebrate his services and record his fame, and there has been a generous emulation in the expression of public gratitude.

An *eloge* has been published by M. Arago, translations of which have been written by Mr. Muirhead and Mr. Hyde Clarke, and a paraphrase by Dr. Lardner. These give all the details of Watt's life and works.

An Essay on Pen and Pocket Cutlery,

Embracing a Detailed Description of the Mechanical, Chemical, and Manual Operations Performed on Certain Raw Materials, to Convert them into the Means, Implements, and Materials, for Manufacturing Pen and Pocket Knives.

BY A. L. HOLLEY.

Continued from page 514.

CHAPTER X.—How to Select and Use a Pocket Knife.

Having prescribed pen and pocket knives, and given a detailed account of the manner in which they and their materials are made, we next naturally look for some means of ascertaining what kinds and varieties are the best "*stuff*," and best adapted to certain purposes. Every one who purchases a pocket knife, if the assortment is large, can usually select just such an article, apparently, as he wishes. The farmers can find their stout *jacks*, and the ladies their more delicate *pens*—the horticulturist can obtain his budding, grafting and pruning knives, and the book keeper his pen and erasing blaces; but no one knows certainly before a trial, whether his instrument will cut or not. It is the bounden duty of every one who earries a knife, to carry a good one, not only for his own sake, but for that of right and justice—for those who make and traffic in cast iron blades and pewter knives, should not and will not be patronized by a whittleing and intelligent people. All that American cutlers wish, is, to convince the people that a good knife *is better* than a poor one. Uhis is self-evident—but some persons are so blinded, as to really believe that it is better to agonize over and wear out a dozen soft and miserable blades, for which they have paid 12 cents apiece, and not finally accomplish their object, than to pay a dollar for a good knife, which will outlast the dozen, and do twelve times the execution. Hence, the Sheffielders take advantage of this defect of the Americans, and export great quantities of *trash* "which the more you whet, the more it will not grow sharp." These are the great stimulating blocks in the way of the farther progress of the science of Whittleol-

ogy," against which we wish to warn our readers. To those who use jack knives exclusively, the advice is given in three words, viz: *use American Cutlery.* No such trash, is made in America, as the best English steel is used in the cheapest and coarsest knives. There is no way of certainly ascertaining whether *jack* knives are good or not, except by feeling of the edge and using them, (though the former is often very uncertain,) without it is, to notice the manufactured stamp on the tang. It is usually much more easy to judge in regard to the merits of fine knives, by their general appearance and finish, though this is not always the case.—Before purchasing a fine knife, (without it is of American manufacture, in which case it is of course supposed to be perfect,) it is necessary to open the blades, feel of their edges, notice if they "walk and talk," (see chap. 7,) and keep the springs exactly even with the scales, when open or shut;—to hold up the instrument to the light, and form your inferences, if you can see through very distinctly between the springs and the scales; to look at the matching, and to notice if there are small creases (which indicates stiffness) running across the blade from the back to the edge, as a *fine* knife that is sold for a good article is usually well put together. Beware of double covering, or two pieces of yellowish pearl matched in the centre, on the same side of the knife, and of "slitted springs," or a half split spring, and no slip in a three blade knife, for these are unmistakable indications of *poor work* and *poor blades.* Some persons cherish the very erroneous idea, that blades are good if they dry quickly, when breathed on. Nothing is more absurd, for moisture will evaporate from the surface of highly polished silver or brass, as quickly as from steel, and even were this not the case, what effect could certain degrees of hardness in any body have on a superficial coating of moisture?—Many inexperiencee whittlers, as soon as they have purchased a new knife, go and grind the polish entirely off from the blades, and often ruin their edge and shape, which barborous process they term 'sharpenihg up.' It is not best to grind a *new* knife, but if it is dull, (as *new* American knives never are) a fine and substantial edge may be put on, by honeing it, not by laying its face directly on the stone, but by slightly elevating the back, and moving the knife evenly across the hone. This will render the edge more obtuse and less liable to break, and quite as sharp, without removing the finish.—It is best to avoid *whittleing* with *pen blades*, as much as possible, for if slender, and good, they will prove that they are of excellent material, by breaking. It is often necessary to oil the joints, or they will wear away, open hard, and at length, cease to be affected by the spring.

Ohio.

The Cleveland and Erie Railroad, from Cleveland to the Pennsylvania State-line, has been let to Harbach, Stone & Wilt, well-known contractors. It is to be a first class road in all respects, and is to be completed by the 1st of December, 1851, in season for the winter travel. If the other lines between Dunkirk and the Ohio State-line are finished as soon, New York will then be connected by railroad with Cincinnati. We fear that line from Erie to the Ohio State-line will not be in readiness by that time. The charter we understand is held by some of the Erie and Pennsylvania people, who are opposed to the road, and will not allow any proceedings under it.

A large number of the richest and most respectable citizens of Cincinnati have petitioned the Common Council of that city to loan the credit of the city for eight hundred thousand dollars to the Ohio and Mississippi railroad. The list is headed by Nicholas Longworth, the richest man in Cincinnati.

Commerce of Philadelphia.

Value of American Merchandise Exported from the port of Philadelphia to Foreign countries during the years ending June 30th, 1849 and 1850.

	Domestic.	Specie.	Total.
July 1 to Sept. 30, '48.	$1,000,785	8,000	1,008,785
Oct. 1 to Dec. 31, '48.	1,445,636	200	1,445,836
Jan. 1 to Mar. 31, '49.	1,016,266	35,313	1,051,579
Apr. 1 to June 30, '49.	1,344,672	....	1,344,672
Yr. end. June 30, '49.	$4,807,359	43,513	4,850,872
July 1 to Sept. 30. '49.	$879,770	....	879,770
Oct. 1 to Dec. 31, '49.	1,094,732	70,000	1,164,732
Jan. 1 to Mar. 31, '50.	889,063	40,002	929,065
Apr. 1 to June 30, '50.	1,078,587	....	1,078,587
Yr. end. June 30, '50.	$3,942,152	110,002	4,052,154

	Domestic.	For.	Specie.
To June 30, 1847....	$8,263,311	239,453	41,627
" " 1848....	5,428,009	251,653	52,671
" " 1849....	4,807,359	350,467	186,585
" " 1850....	3,942,152	297,889	260,671
Total 4 years.....	$22,440,831	1,139,462	541,564

Total Domestic, Foreign and Specie.

To June 30, 1847.....	$8,544,391
" " 1848.....	5,732,333
" " 1849.....	5,344,421
" " 1850.....	4,500,712
Total.....	$24,121,857

Value of Foreign Merchandise Exported for the years ending June 30th, 1849 and 1850.

	Foreign Mdse.	Specie.	Total.
July 1 to Sept. 30, 1848.	$55,705	$40,112	$95,817
Oct. 1 to Dec. 30, 1848.	49,961	21,651	71,612
Jan. 1 to Mar. 31, 1849.	113,529	74,614	188,143
Apr. 1 to June 30, 1849.	131,272	6,705	137,977
Totals.....	$350,467	$143,082	$493,549
July 1 to Sept. 30, 1849.	$31,668	$3,800	$35,468
Oct. 1 to Dec. 31, 1849.	51,752	101,117	152,969
Jan. 1 to Mar. 31, 1850.	51,807	42,096	93,903
Apr. 1 to June 30, 1850.	162,562	3,656	166,218
Totals.....	$297,889	$150,669	$448,558

Value of Foreign Merchandise Imported into the District of Philadelphia during the years ending June 30, 1849 and 1850.

	Free.	Specie.	Total.
July 1 to Sept. 30, 1848..	$212,272	$54,110	$3,378,170
Oct. 1 to Dec. 31, 1848..	191,886	79,495	1,988,898
Jan. 1 to Mar. 31, 1849..	171,773	105,576	2,832,873
Apr. 1 to June 30, 1849..	279,153	28,387	2,444,862
Year ending June 30, '49.	$855,084	$270,568	$10,644,803
July 1 to Sept. 30, 1849..	$184,515	$17,747	$3,307,244
Oct. 1 to Dec. 31, 1849..	221,186	14,592	1,575,500
Jan. 1 to Mar. 31, 1850..	382,688	5,823	3,900,183
Apr. 1 to June 30, 1850*.	372,800	3,174	2,832,874
Year ending June 30, '50.	$1,161,189	$41,336	$11,615,801
To June 30, 1847.....	$875,786	$158,601	$9,586,126
" " 1848.....	798,320	327,854	12,147,099
" " 1849.....	855,084	270,568	10,644,803
" " 1850.....	1,161,189	41,336	11,615,801
Total 4 years.....	$3,690,379	$798,359	$43,993,829

	Dutiable.
July 1 to Sept. 30, 1848..	$3,111,788
Oct. 1 to Dec. 31, 1848..	1,717,517
Jan. 1 to Mar. 31, 1849..	2,552,524
Apr. 1 to June 30, 1849..	2,137,322
Year ending June 30, '49.	$9,519,151
July 1 to Sept. 30, 1849..	$3,104,982
Oct. 1 to Dec. 31, 1849..	1,339,722
Jan. 1 to Mar. 31, 1850..	3,511,672
Apr. 1 to June 30, 1850*.	2,456,900
Year ending June 30, '50.	$10,413,276
To June 30, 1847.....	$8,551,739
" " 1848.....	11,020,925
" " 1849.....	9,519,151
" " 1850.....	10,413,276
Total 4 years.....	$39,505,091

* Assumed.

The Governor of Mississippi, replying to a gentleman of Georgia relative to the continuous railway through Alabama and Mississippi to Vicksburg, states that the legislature, during its last session, passed an act reviving and amending the act to incorporate the Southern Railroad company, which "authorises the Governor, so soon as that company shall be organized, and shall have completed twenty miles of the road from its present terminus, (Brandon), to convey and surrender absolutely to such company the portion of the road now completed, and all the property of the State connected therewith, as well as all interest in the Two Per Cent Fund accrued and accruing, upon the company's guaranteeing the continuation of the railway to the Alabama line within six years." "The property of the State connected with the Southern railroad consists of about sixty able bodied and valuable slaves, horses, teams, wagons, carts, grading implements, and all necessary tools, &c., for 100 laborers; of a locomotive, passenger and freight cars, and balance of the Two Per Cent. Fund now on hand; the whole, including the cost of the section of the railway now completed, estimated at more than $300,000 in value." The distance of the road to be completed, as ascertained by actual surveys, is but 98 miles, and the best calculations of the cost do not exceed $12,000 per mile. A bill has passed the Senate of the United States, giving the State of Mississippi the right of way through the lands owned by the United States on the proposed line of their railroad, with 2000 feet of land, the length thereof, also the right to take necessary materials of earth, stone and timber from the public lands adjacent to said railroad for the construction thereof, and the United States grants for the purpose of aiding in the making the said railroad, every alternate section designed by even numbers for six sections in width on each side of said road. A convention of citizens of Georgia, Alabama and Mississippi, and others who may be interested in the great chain of railroads from Portland, Me., to Vicksburg, Miss. is to be held at Livingston, Ala., on the 1st of October next, and books for subscription to the stock of the road are to be opened on the 7th of October, at various points on the proposed route.

Nashville Suspension Bridge.

We have been politely furnished by the enterprising Architect, Capt. Fields, with dimensions of the superb structure now nearly completed across the Cumberland at this place, and which for beauty and workmanship, and substantial material, will compare favorably with anything of the kind we doubt not, in the United States.

Extreme length.....	672 feet.
Distance between the towers.....	538 feet.
Height on the Nashville side above low water.....	109 feet.
Height above the water at the last great rise.....	62 feet.

[*Nashville Banner.*

Canada.

We learn with much pleasure that Mr. Campbell, whose abilities and enterprise as an engineer and railroad contractor are so well known and appreciated in the adjoining States, has concluded an arrangement with the Champlain and St. Lawrenee railroad company for building the extension of their line to Rouse's Point, where it will connect with the several roads to Boston and New York, as well as with the Ogdensburg road, and that it will be positively opened for business, according to the terms of contract, in the month of June next.

Travellers will then be able to reach Boston in fourteen, New York in eighteen, and Prescott, in Canada West, in seven hours.—*Montreal Gazette.*

Railroads.—The Committee of the Hamilton City Council have recommended that body to issue debentures to the amount of £100,000 for the construction of the Great Western railroad.

A bill, authorising the issue of £100,000 in debentures, for the Toronto, Simcoe, and Lake Huron railroad, is now before the Toronto City Council.

We observe that there is a project afoot to con-

nect Plattsburgh with the projected Lake St. Louis line, and ultimately to continue that railroad to Whitehall.—*Hamilton Spectator.*

Steam Power of France.

According to a late statistical report, made to the government, the number of locomotive engines constructed in France, and employed by the country in 1842, equalled the number imported from abroad; in 1843 there were two more French than foreign engines; in 1844, the surplus was 44; in 1845, 76; and in 1846, beyond which year the report did not go, this excess was 161. In 1846, there were 294 steamboats, belonging to private individuals and companies navigating the rivers and seas. The numbers and force of the engines in use on land, and acting as locomotives in the steamers, were, in 1846, as follows, viz.: 4,395 engines at work on land, equalling 163,402 horse power; 461 locomotives, of 60 horse power each, upon the average amounting to 27,600 horse power; 338 engines used in steamships and boats, amounting to 208,513 horse power. These together give a force of 299,515 horse power. Comparing the strength of man to horse power, it will be found that the steam engines employed in France, in 1846, were substitutes for 2,097,625 men.

We see it stated that Mr Edwards, the Engineer of the Troy and Boston railroad, and Mr. Felton, the Superintendent of the Fitchburg road, have been sent to Europe by the Troy and Boston road to obtain information in regard to the new invention of the power drill by which it is stated 22 feet of solid rock may be got through per day.

We presume their mission has reference to the proposed tunnel on the line of the road between the Connecticut river and Troy. We find, notwithstanding the formidable character of this work, that a great many persons believe it to be practicable, and that there is strong probability that it will be commenced. It is to be three miles long, and to run 1500 feet below the top of the mountain. This great depth precludes the working by shatts, which can only be carried on at each end.

Massachusetts.

Manchester and Lawrence Railroad.—The report of the directors of this road shows the entire cost up to June 1st, 1850, to be $749,424 06. The road was opened to public travel Nov. 13, 1849, but the freight trains did not commence until January 1st, 1850.

The gross amount of income to June 1st, is	$37,213 38
Whole amount of expenditure	24,104 19
Net earnings	$13,109 19
Estimated earnings, for June, 1850	3,500 00
	$16,609 19
3 per cent dividend on $471,576 31, am. of stock paid in	$14,147 29
Paid Boston and Maine road for the use of same from State-line to Lawrence	1,855 00
	$15,992 29
Leaving to go to depreciation account.	$615 90

Baltimore and Ohio Railroad.

The revenue of the Baltimore and Ohio railroad for July was as follows:

	Passengers.	Freight.
Main Stem	$32,543 53	$61,691 81
Washington Branch	24,407 45	2,821 64
	$56,950 98	$64,513 45

Making an aggregate of $94,235 35 on the Main Stem, and $27,229 09 on the Washington Branch—the total being $121,464 44. The above shows an increase over the corresponding month of last year of $12,052 94 on the Main Stem, and $9,346 45 on the Washington Branch—making an aggregate increase on both roads of $21,399 39. Of the freight, 14,160 tons were coal.

Progress of the Railroad from Toledo to Chicago.

This road is making rapid progress westward.—We are permitted to state, on the authority of a gentleman connected with the board of directors, that the Great Western railroad *will be completed* from Toledo to Sturges Prairie, *one hundred and sixteen miles*, and the cars running over that distance this fall, and to Coldwater in all of September. Iron has been procured and is on the way here, for the whole distance. This will be welcome news to our citizens and to the whole west. Now, if the road between this and Fremont was completed we should secure the great bulk of the travel which usually passes the south shore of Lake Erie and Lake Michigan. We very much regret, that this road is not in readiness. That road should have been commenced this spring, and it could easily have been put in readiness. No time should now be lost in putting it under contract.—*Toledo Republican.*

Indiana.

Indianapolis and Bellefontaine Railroad.—At the annual meeting of the stockholders of this company, held at Anderson, Madison county, on the 3d instant, the following gentlemen were elected directors for the ensuing year, viz:

Jeremiah Smith, William M. Way and David Heaston of Randolph county, David Kilgore, S. P. Anthony and James Truitt of Delaware county, M. G. Walker, Allen Makepeace and Wm. Sparks of Madison county, Thomas R. Noel of Hamilton county, Oliver H. Smith and Alfred Harrison of Marion county, Wm. A. Rifner of Henry county, George King of Johnson county, and R. H. Winslow of New York.

The following persons were elected officers, viz: O. H. Smith, President; James G. Jordan, Secretary; Austin W. Morris, Treasurer; and Thos. A. Morris, Engineer.

In relation to the progress of the road the President in his report states that—"Within the year our stocks have been gradually increasing, and we have done much in procuring means and materials, and in the construction of the work; yet much remains to be done. Our liabilities of every kind have been promptly met, and our credit has been maintained unimpaired. We have purchased the heavy T rail, chairs, and spikes, for thirty-four miles of our road, extending from Indianapolis to Anderson, by the negotiation of our ten year bonds at fair rates. We are now ballasting the grade and laying the iron on the first general section from Indianapolis to Pendleton, twenty-six miles, at the rate of two miles per week, carrying forward the gravel, lumber and iron by steam power, and the balance of the iron to lay the eight miles, from Pendleton to Anderson, we expect to receive early the coming fall, and to lay it down before the season closes.

The Union steam track at Indianapolis has been completed and works finely. With this track the four railroads located to that city are connected by switches to their respective depots, and other roads, that may be hereafter located there, may connect in like manner, and the whole transportation from road to road will be done by steam, as the business shall require.

We have made arrangements by which the Madison company will do the business of our road with their locomotives and cars, as far as Anderson, for a limited time, upon terms highly beneficial to both companies: we receiving the net profits of the road, and they receiving a fair compensation for running it, besides the benefits arising from the increased business that will be thrown upon the Madison road, while our means will be left free after the road to Anderson shall be completed, to push the work forward to the State line.

Our whole road is finally located, and, except a few sections, opened to the Ohio line, and we have every confidence that it will be in operation to Pendleton by the 1st of October, ready to receive the northern business, and if the iron arrives in time, as we expect, we can complete it to Anderson this season. We contemplate completing the grade to Muncie this season, and having the cars there the next, and at the State line by the autumn thereafter. This we can, and must do, if our subscribers will give us their promised aid, and the counties through which the road runs will do their duty."

Ship Timber from Wisconsin.

Large quantities of ship timber, consisting of oak knees, plank, etc., now lie in our ship yards and are being worked up into elegant ships after having performed a journey of eight to ten hundred miles, from the forests of Michigan and Wisconsin. Within a few days past, Wm. H. Webb has received fifteen hundred ship knees from Michigan via Buffalo and the canal, and another large lot is on the way from Wisconsin, for Messrs. Perrine, Patterson & Stack. Enoch Hunt, of Ohio city, is the mover in this enterprise, and is reaping the reward of his sagacity. A railroad having been built from Monroe, Michigan, at the western extremity of Lake Erie, into the interior of that State, he distributes through the adjacent country circulars describing the size and quality of the sticks desired, and they are soon forthcoming, and commence their long journey towards the rising sun. The woodmen engaged in the business of preparing this timber, are just beginning to know what is wanted of them, and the timber produced is of an excellent quality.—*Jour. of Commerce.*

Emigration from Great Britain.

We copy the following table from the London Chronicle of the number of emigrants who have left the United Kingdom during the past ten years, and the several places of their destination.

	North American colonies.	United States.	Australian colonies & New Zealand.	All other places.	Total.
1839	12,658	33,536	15,786	227	62,207
1840	32,293	40,642	15,850	1,958	90,743
1841	38,164	45,017	32,625	2,786	118,592
1842	38,123	63,852	8,534	1,835	128,344
1843	23,518	28,335	3,478	1,881	57,212
1844	22,924	43,660	2,229	1,873	70,686
1845	31,803	58,538	830	2,330	93,501
1846	43,439	82,239	2,347	1,826	129,851
1847	109,680	142,154	4,949	1,487	258,270
1848	31,065	188,233	23,904	4,887	248,089
1849	41,367	219,450	32,091	6,590	299,493
Total	441,034	945,656	142,623	27,680	1,556,993

A large part of the Europeaas who land in the Provinces find their way into the United States.

☞ The London "Builder" says of the Iron dome of the International Exhibition Hall: "The construction of this dome, 200 feet in diameter, tho' of light sheet iron, will be no joke. We may remind the reader that it will be double the size of our St. Paul's dome, which is about 112 feet in diameter. The dome of St. Peter's at Rome, is 139 feet in diameter, and that of the Pantheon 142 feet. This central hall will be a polygon of sixteen sides—four of which will open into gardens reserved around it. Its main walls will be of brick, and 60 feet high.

STATEMENT,

Showing the number and condition of each sort of Iron Works, and the capital invested in Land and Buildings in each County in Eastern Pennsylvania, in the year 1850.

County.	Anthracite Blast Furnaces.						Charcoal Blast Furnaces. Hot Blast.					Charcoal Blast Furnaces. Cold Blast.					Bloomeries.			Forges.			Rolling Mills.			Total.		
	S* F	† Unfinh'd	In.	Out.	Tot.	Investment.	S F	In.	Out.	Tot.	Investment.	S F	In.	Out.	Tot.	Invest. ment.	S F	No.	Inv'st-ment.	S F	No.	Investment.	S F	No.	Investment.	S F	No.	Investment.
Adams,														1	1	4,000										1	4,000
Blair,							4	4	4	8	283,000		4		4	275,000				2	14	314,000	1	50,000	6	27	922,000
Bedford,							1		2	2	25,000	1		1	1	10,000				2	3	18,000			4	6	53,000
Berks,			1		1	65,000	2	4		4	201,000	1	6	2	8	325,000				5	23	310,000	5	310,000	8	41	1,231,000
Bucks,		1	1		2	120,000																				2	120,000
Bradford,																											
Carbon,	1		1	1	2	15,000		1	1	2	80,000							4	11,700		2	12,800			1	10	119,500
Cumberland,							2	1	1	2	215,000	5		5	5	159,000				3	4	75,000	1	75,000	10	12	524,000
Columbia,	5		5	6	11	745,000	2	2	2	4	51,000	1	1		1	3,500				1	1	5,000	1 3	303,000	10	20	1,107,500
Chester,			1	2	3	300,000							2		2	200,000				1	6	106,000	2 14	642,200	3	25	1,248,200
Centre,							1	1	1	2	180,000	5	4	4	8	308,000				2	5	63,000	2 5	114,000	10	20	665,000
Clearfield,									1	1	84,000															1	84,000
Clinton,							1	1	2	3	195.000	2		2	2	10,000					1	15,000			1	6	220,000
Dauphin,	1			2	3	103,000	1	1	1	2	100,000	2	2		2	40,000					2	19,000	1 1	20,000	5	9	282,000
Delaware,																								16,000		1	16,000
Franklin,							1	2		2	101,000	3	1	5	6	112,000				3	8	61,500	1 1	32,000	8	17	306,500
Huntingdon,							6	6	3	9	345,000	4	3	3	6	230,000				5	11	256,000	1 2	65,000	16	28	896,000
Juniata,																											
Lehigh,			6	1	7	410,000			1	1	60,000	1		1	1	8,000									1	9	478,000
Lycoming,							1		1	1	25,000		1	1	2	50,000					2	28,000	2	47,500	1	8	150,500
Luzerne,			2	2	4	270,000		1		1	20,000										1	12,000	1 2	400,000	1	8	702,000
Lebanon,		1	1	1	3	195,000							2	1	3	420,000					3	70,000				9	685,000
Lancaster,	3	1	5	3	9	305,000		3	2	5	335,000		1	1	2	95,000				2	12	223,000	2	315,000	5	30	1,273,000
Mifflin,							3		4	4	95,000			1	1	10,000				2	2	60,000			5	7	165,000
Monroe,																		1	15,000							1	15,000
Montgomery,	1		2	3	5	273,000								1	1	23,000				1	2	20,000	4	187,000	2	12	503,000
Northumberland,	1		1	1	2	120,000						1		1	1	20,000					1	6,000			2	4	146,000
Northampton,	1	1	2	1	4	260,000											1	1	2,000				1	35,000	2	6	297,000
Potter,																											
Perry,							2		3	3	90,000	1		2	2	30,000				1	1	60,000	1	185,000	4	7	365,000
Pike,																											
Philadelphia,																					3	45,000	2	8	307,000	2	11	352,000
Susquehanna,																											
Sullivan,																											
Schuylkill,	1	1	1		2	40,000		2		2	53,500			1	1	14,000				4	6	127,000	1 1	20,000	6	12	254,500
Tioga,							1	1		1	20,000												1	5,000	1	2	25,000
Union,							2	1	2	3	31,000									1	1	6,000			3	4	37,000
Wayne,																											
Wyoming,																											
York,							2		5	5	278,000									1	3	90,000			3	8	368,000
	14	5	29	23	57	3,221,000	32	31	36	67	2,867,500	27	27	33	60	2,356,500	1	6	28,700	36	118	2.012,300	12 56	3,128,700	120	364	13,614.700

* Sold by Sheriff, or failed, since 1840.

† On two of these furnaces the work has been suspended over a year. On two others the work will be completed, but they will not be blown in.—The remaining furnace will be completed and blown in, as it is to take the place of another one worn out.

It is with infinite regret that we contemplate the present position of the two largest mining interests in the United Kingdom—the coal and iron trades. We fear that a vast amount of capital invested in these great branches of our national industry is at this moment unproductive of any profit. The causes which have led to this melancholy result are various, but that most apparent is the stimulus which was given to the demand by the mania for railways in 1845 and 1846. The productive power which now exists is gigantic, and, as it appears to us, most unwisely is this power wielded. A sort of war of extermination is being waged; all are trying to raise or make the most, and sell the cheapest. The weakest must, before long, go to the wall, for it is clear that vast quantities of coal are now raised, and much iron is made and sold at less than the cost. The probable loss of a part of the American market, is a matter which will aggravate the difficulties of the iron trade, and the sorry plight of all the railway companies, great and small, of this country and of France also, does not tend to raise better hopes. The prudent course, under such circumstances, is perfectly manifest, and that is, to gradually diminish the get of coal and make of iron. This is the course which an individual would take, and which the whole trade might readily adopt with one consent, not in accordance with any agreements or regulations, but as a general rule of conduct from one end of the kingdom to the other. The supply is clearly greater than the demand, prices are ruinously low, and they must fall lower if the quantities are not decreased. A united effort will rapidly bring about an improvement, but a continuance of the present system of conduct will cause a wide-spread scene of ruin.—*London Mining Journal.*

Accident on the Erie Railroad.

We copy the following from the note of the President relative to the late accident upon this road. He says:

"This iron bridge, the giving way of which caused this accident, was the only one of the kind on the road, and when put up was supposed to be perfectly safe, and to possess many advantages over wooden structures in its greater strength, durability and exemption from fire.

It was not an experiment; but had been used before on several other roads, and had proved satisfactory. It was supposed to be perfectly safe up to the moment of giving way—but the fact of its giving way without any previous warning decides the question in the minds of the directors as to the entire disuse of iron bridges for the future. The one just destroyed has been replaced with a substantial wooden structure. There are two more small iron bridges remaining on the road, and those of different make and pattern, and supposed to be perfectly safe, but they will be removed as soon as possible, and their places supplied with wooden bridges; until their removal they will be secured beyond the reach of accident by wooden supporters. Without expressing any opinion as to the comparative safety of iron or wooden bridges, the directors have decided to use no more iron bridges.

In order to secure the safety of their bridges and of lives of passengers, the company have always had a careful superintendent of bridges, of great experience, whose duty it is to give constant attention to the safety and security of those important structures; and had the bridge in question been constructed of wood, the indications of giving way would have been timely detected."

Query for Scientific Men.

In what manner does a diamond act upon glass, so as to cut it? That it does not penetrate its substance is obvious to any one who will attend to its operations; for it only divides the exceedingly attenuated pellicle on the surface, and penetrates no deeper. The best cut of a diamond is when it makes the least noise in passing a line, and it cuts in the same manner the thickest as well as the thinnest plates of glass. The Encyclopœdia Americana says: "It is very remarkable that only the point of a natural crystal can be used. When cut or split, the diamonds scratch, but the glass will not break along the scratch, as it does when the natural crystal is used." Again, the crack is often found to follow the diamond after it has passed several inches. That it does not cut it by dividing the pellicles is clear, because a piece of quartz will do the same by passing in the same line repeatedly, yet will not break true. Then how does the diamond act?

Maine.

York and Cumberland Railroad.—Director for the ensuing year: F. O. J. Smith, Levi Morrell, and George Warren of Westbrook, John A. Poor, Abner Shaw and N. L. Woodbury of Portland, Josiah Pearce of Gorham, Benjamin J. Herrick of Alfred, Timothy Farrar and J. T. Paine of Boston, John A. Burleigh of Great Falls, Benjamin Barnes of Dover, Rufus McIntire of Parsonfield. The directors were instructed to commence operations on the western terminus of the line as early as practicable.

This road is now in operation to Morrill's Corner, Westbrook.

Illinois.

Alton and Sangamon Railroad.—In order to satisfy, as far as is in our power, the public inquiry, in relation to the progress of the Alton and Sangamon railroad, we take this occasion to state, that all the timber for the depot and engine house has been procured, and is now being sawed—that 3,500 tons of iron for the use of the said road has been purchased, and is to leave Leeds by the 1st of October next, and be delivered at New Orleans by the 1st of January following—that the ties have been contracted for and already partly delivered here—and that the contracts for the construction of the locomotives and cars to be used on the road are believed to have been closed by this time. According to the terms of the contract, active operations on the road were to have been commenced on the first of this month; but we learn from a telegraphic dispatch, that the principal sub-contractor has been detained at Springfield, Ohio, by sickness. He was, however, convalescent at the last accounts; and is probably now on his way to this city.—*Alton Telegraph.*

New Hampshire.

Cocheco Railroad.—We understand, says the Dover Enquirer, that the Cocheco railroad, from Farmington to Alton Bay, is to be immediately located under the direction of Thomas S. Williams, Esq. Marshall Conant, Esq., has been engaged to make the necessary surveys, etc. The amount necessary to complete the road to Alton Bay, and pay off the floating debt of the company, is about $200,000—of this amount $70,000 has already been obtained.

Peterboro and Shirley Railroad.—This road will be completed to the town of Mason in September, so as to be in operation at the time of the celebration of the settlement of New Ipswich.

Worcester and Nashua Railroad.—This road is steadily and quietly working its way into public confidence and favor. The earnings of the road for the month of July show a handsome gain upon the same month last year.

Earnings in July, 1850	$13,883 40
" " 1849	10,466 32
Increase	$3,417 08

The earnings from January 1st to August 1st, seven months, have exceeded in the sum of $16,401 71, the earnings in the corresponding seven months of 1849; which is a gain of 27 per cent., and in a dull year for business. The debts of the company having been disposed of, a dividend on the stock will undoubtedly be paid in January next.

New York.

Ogdensburg Railroad.—The superintendant of the Ogdensburgh railroad, in anticipatation of its being opened on the first of October next, from Ogdensburgh to Lake Champlain, has given notice that the following articles, in quantities of not less than ten tons each will be carried as thro' freight, at $3 per ton of 2,000 lbs. during the present year, and that no charge will be made for wharfage at either end of the road this season, viz: iron, (pig, bloom and bar) nails, spikes, molasses, sugars, coffee, teas, liquors, salt, salt fish, mineral coal, copper, copper and iron ores, pot and pearl ashes, salted beef and pork, hams, lard, tallow, flour, meal and grain (in sacks, casks, or barrels) lime, plaster, potatoes and other roots (in sacks or casks, at risk of weather by owners,) wool at $4 per ton of 2,000 lbs. Flour in quantities of 500 bbls. and upwards will be carried as through freight, at 25 cents per bbl. Seasoned pine boards will be carried as thro' freight at $2 50 per 1000 feet board measure, to be loaded and unloaded by the owner.

English Iron Trade.

The trade remains in a critical position. During the whole quarter the generality of our works have not had more than half employment, and that without profit; and while it is abundantly evident that great difficulty would be encountered before a reduced scale of wages could be established, there is no probability that prices of iron will rule higher. An important subject has lately occupied the attention of some of the leading merchants connected with this trade, viz: the heavy duties that are levied by foreign states upon British iron, and a proposal has been made to form an association for the purpose of obtaining a remission or alleviation of such imposts, but the appeal seems to have as yet excited little attention in Staffordshire. The duties upon iron in the German Customs League, France, Austria, Spain, etc., are very heavy, and form a serious obstacle to the extensive transactions we might otherwise have with those countries. The tariff of the Zollverein is also at this time on the eve of being revised, and the German manufacturers, like those of the United States, are very clamorous for higher protective duties. How far they may succeed remains to be seen; but the present depressed state of the trade, and the almost entire destruction of our own home market, make it a matter of peculiar interest to the iron master at the present moment.—*Birmingham Gozette.*

The usual meeting preliminary to the ensuing quarterly assemblages of the iron masters of South Staffordshire and East Worcestershire, was held at Mr. Bolton's the New Inn, Handsworth, on the 27th ult., and was numerously and influentially attended. The present state and future prospects of the trade were discussed, and ultimately it was unanimously resolved that the prices adopted at the last quarterly meeting in March should be maintained.—They may be stated as follows: bars £6 per ton; nail rods £6; hoops £6 10s.; sheet £7 10s.; pigs from £2 15s. to £3 7s. 6d., at the works. From the discussion which occurred at this meeting it may be gathered, that although the iron manufacture of the district is greatly depressed, it is not suffering to the extent which some persons have described. The Welch trade is better; but little can be said in favor of the Scotch iron manufacture.—*English Railway Times, July 6th.*

To the Editor of the American Railroad Journal.

MARION, O., Aug. 12th, 1850.

Dear Sir—I have read with much pleasure an article signed "St. Louis," published in the Journal of August 3d. The object of the writer "is to claim your aid, (in conjunction with the press generally of the Western States,) in procuring from the government a fair examination of the country between our western boundary [alluding to Missouri] and the Pacific, and a survey of the route and passes which are eligible for a road or railroad."

That is precisely what the people want from government, and at present, they want nothing more. It is not necessary, or expedient, that Congress should commit the government in behalf of any *particular plan* for building the railroad, at least in the present stage of the proceedings. Neither Mr. Whitney's, nor the Boston plan, nor any other special mode of actually doing the work, should be decided upon now; but, in justice to the immense interests concerned, Congress in behalf of the whole nation, should, at this session, make provision for extensive and thorough surveys, and at the earliest practicable period, establish the main route across the territories.

The convention of distinguished citizens from fourteen States, assembled in the city of Philadelphia in April last, unanimously adopted the resolution "That this committee recommends to the American people, in all parts of our common country, to urge upon Congress, by numerous petitions, to make an early and an ample appropriation, for surveys for the most feasible routes for the construction of a direct railroad to California and Oregon, from the valley of the Mississippi."

Congress need not waste time in discussing the mode of building the road, but if in obedience to the known will of the country, a bill should be passed making the requisite appropriations, every body would be satisfied, and the surveys could forthwith be commenced.

By establishing the best route, by the opening of a good common road along that route, and by offering the strongest inducements for actual settlers to take up the lands along that line, the country would soon be settled: and the first proper preliminary steps would thus be taken. Every thing else would follow, naturally, and easily:—the erection of government posts at suitable points, the construction of a line of telegraph, and finally the railroad itself.

Quite as soon as the railroad proper can be commenced, we shall have continuous lines of railway stretching from Boston, New York, Philadelphia and Baltimore, to the western boundary of Missouri—more than one-third of the entire distance across the continent. Not a day should be lost in urging forward its extension to the Pacific, for it cannot, with the united energies of our whole people, be finished one day before the commercial interests of our country will demand it.

Our government, since the glorious proclamation of liberty first sounded through our wide spread land, has never undertaken a more magnificent scheme, or one better calculated to promote the good of the whole country.

It is not a sectional, or a party measure; for, as was suggested in the Philadelphia Convention, the grand trunk line to be built under the auspices of the general government, may strike some point west of Missouri, from whence three grand lines may be constructed to *Memphis*, to *St. Louis* and to *Chicago*, thus bringing the south, the middle and the north, in direct communication with our noble possessions on the Pacific, by the grandest thoroughfare in the world.

When this railraad is completed, instead of occupying four or five months on a tedious and dangerous sea voyage round Cape Horn, or six or eight weeks by way of the "deadly Isthmus of Panama," we may pass from New York to San Francisco in *five days*, at much less cost, and free from the risks attending either of the routes now followed by thousands upon thousands. The travel and freight business which this great continental railroad will command must in the nature of things be enormous, affording a splendid revenue, whilst extending at the same time such vast facilities to our country and to the world at large.

In every aspect in which it can be viewed, this gigantic railway is worthy of our government, and

worthy of the age in which we happily live. It should be the labor and pleasing duty of every true statesman, and of every lover of his kind, to encourage and hasten on its completion.

It will be a monument, to which all Ohio now and in its accomplishment, will hereafter proudly point, as the greatest and best public work which any country has ever produced.

Yours, truly,
PACIFIC.

AMERICAN RAILROAD JOURNAL.

Saturday, August 24, 1850.

Shall Congress Aid the Construction of Railroads by Grants of Lands?

Every person in the United States who has anything to buy or sell, is benefitted by the Erie Canal. It is the great channel by which western produce reaches the manufacturer; and as cheap production is based upon cheap food, the price of the manufactured article he purchases is just in proportion to the cheapness with which the manufacturer can obtain the food for his labor. If this great avenue should be closed, the prices of every kind of domestic fabrics would permanently advance. So important is this great work to all the interests of the country, that there are many States which have recived a greater advantage from it in the di - ished expense of transportation, than the whole cost of it.

The Erie Canal may be properly put as a striking illustration of the benefits derived from every work of a similar kind. They differ from this only in the *degree* of good they confer. Every part of the country therefore is interested in the success of every line of railroad that is built or in progress. Where therefore a proposed road, from its extent or connections, becomes national in its influence and benefits, it may properly become a recipient of government aid, and its encouragement is justified on the ground of a wise economy alone; on the ground that the whole country will be benefitted by it to a greater extent than the amount of aid granted.

However beneficial a proposed work may promise to be, we should oppose any direct aid to it in money. We do not believe it to be good policy for the general government to connect itself with the public improvements of the States. But it can effectually aid lines of great public utility by grants of lands which are of little value to itself, but which may be very valuable in the hands of those engaged in the construction of railroads.—This aid must of course be limited to lines running through, or in the vicinity of these lands, and the grants may be justified on the ground that the government is the gainer from the increased value of the lands it retains. It is also the duty of the goverment to foster and promote the settlement of the country. This duty has been repeatedly recognised by extensive grants of lands having this object alone in view.

Those asking aid, therefore, have abundant precedents in their favor. They ask nothing that has not been previously granted to others. The aid they seek is to benefit the whole country to a vastly greater extent than its amount. In addition to these reasons, there seems to be every probability that unless some such useful disposition is made of our public domain, it will be entirely frittered away upon useless and undeserving objects—that it will become the subject of political intrigue and corruption, and will not only be lost to government, but be productive of actual evil in its distribution. By timely action it may now be made the source of the most benificent results to the whole country, not only in the advancement of its material interests, but in promoting a spirit of harmony and good will, based upon the more intimate connections it can be made to secure.

Some of the lines which we desire to see aided, are the Mobile and Lake Michigan, the Pacific railroad, from St. Louis to the west line of Missouri, the Rock Island and Council Bluff railroad, the Alabama and Tennessee, and the Memphis and Charleston railroad. There are others of less importance which should receive similar encouragement. Bills granting aid to all of the above lines we believe have passed the Senate, and we hope soon to chronicle their passage through the House of Representatives.

Central Railroad Route between the North and the South.

There now bids fair to be constructed within a very few years, a direct and continuous line of railroads, connecting all the leading northern Atlantic cities with New Orleans. This line will diverge from the present travelled route at Washington or Alexandria, striking from thence to Lynchburgh, Va.; thence by the Virginia and Tennessee railroad to the Tennessee line; thence by the East Tennessee and Virginia railroad, and the East Tennessee and Georgia railroad, through Knoxville and Chattanooga, to the northern terminus of the Alabama and Tennessee railroad; thence by the last named road to Selma on the Alabama river, thence by the river and gulf, by steamboat, to New Orleans. A road will, without doubt, ultimately be constructed from Selma direct to New Orleans; but the line indicated above is the one which for the present will be followed. A glance at a map of the United States will show the directness of this route. It is one to which the natural configuration of the country will allow no rival, unless it pursues the same path.

Almost the whole extent of this great line of railroad is now in progress. The first southern link in this great chain from Selma to the bend of the Tennessee river at Gunter's Landing, the probable northern terminus of the Alabama and Tennessee railroad, a distance of about 200 miles, is now in progress. The route of this road traverses one of the most fertile as well as the richest portions of Alabama. The people on its line possess sufficient means for its construction. Its management is in able and efficient hands. Those interested in it are fully aroused to its importance, and are ready to contribute to it most liberally, and we see no reason why it will not be constructed with all the despatch practicable in a work of such magnitude.—From Gunter's Landing to Chattanooga, the line for a portion of the distance will be supplied by the Nashville and Chattanooga railroad, which follows down the Tennessee river into Alabama, before crossing. The remainder of the distance between Chattanooga and Gunter's Landing is, we believe, unprovided for. It may perhaps be supplied in part by the Memphis and Charleston railroad.

From Chattanooga a branch will be required to the East Tennessee and Georgia railroad, to save the circuit by way of Dalton. This can be easily constructed, and we presume will be built by that company as soon as it shall be wanted to make the line complete. The East Tennessee and Georgia railroad is in a state of great forwardnesss. Iron for eighty miles of the road has already been purchased, and the whole line to Knoxville will be completed at an early day.

The construction of the line from Knoxville to the Virginia State-line has just commenced. The engineer of this road, Lloyd Tilghman, Esq., expresses the utmost confidence in the ability of the inhabitants on the route, with such aid as may be reasonably expected from abroad, to build it. Following the vallies made by the Tennessee river its branches, it is of easy construction. From the enthusiasm manifested in its favor, it bids fair to command the entire ability of those interested in it. We believe that we may set down this road as certain to be constructed within a reasonable time.

From the Virginia State-line the Virginia and Tennessee railroad will take up and extend this great chain to Lynchburgh. A large section of this road is under contract. The State subscribes three-fifths of its stock, and the balance can be readily furnished by private subscriptions, if the people on its route will do but half their duty. The Orange and Alexandria railroad will supply the greater part of the distance between Lynchburgh and the Potomac. That portion of the line from the southern terminus of the last named road and Lynchburgh is, we believe, unprovided for. The Orange and Alexandria is under contract, with sufficient means to secure its early completion.

Such is a statement of the condition of the various works which are to make up this great line.—In directness it will be unrivalled. In natural attractions we do not know of a line of equal extent in any part of the country which can compare with it. It will run between between parallel ridges of the Allegheny Mountains for more than 500 miles. The country it will traverse is not excelled in natural resources by any portion of the Union. The construction of this great line in a comparatively short time is now rendered certain, and when completed, it must ever constitute one of the most conspicuous and important lines of intercommunication in the country.

Western Credits.

It is certainly very gratifying to witness the increased favor with which western securities and western enterprises are now regarded by capitalists, compared with the limited credit they enjoyed a year or two since. One extreme is sure to follow another, and there may be some danger that the facility with which western securities can be negociated in this market, added to the growing disposition on the part of eastern men to engage in these enterprises, on their own account, will lead to a too rapid expansion of these works. Only such a portion of our capital can be permanently invested without embarrassment to business. The danger of over-investment is strikingly illustrated by the present condition of Massachusetts. The same drafts that the New England railroads made upon the money capital of Boston, the roads of other portions of the country are now making upon New York. While therefore we would encourage the construction of public works, the proper way to do this most effectually is to secure to them healthy growth.

Railroads create wealth just in proportion as they reduce the cost of transportion. So far they replace immediately the capital invested in them.—Their value in this way may be more accurately measured than by the dividends they pay. Subject to this test the importance of railroads to the west becomes the more striking. In many parts of the Mississippi Valley the cost of sending agricul-

tural products to a market, is greater than the cost of production. A railroad then becomes a greater item in the production of wealth than a fertile soil. In the increased price obtained for the staples of a country, a railroad may pay for itself in a very short time; consequently, its cost is not felt as a burden after this is accomplished. There are very few railroads in the west that will not in this way pay for themselves in a very few years, to say nothing of their dividends or increased value they give to real estate. Dividends may be, and often are, very uncertain evidences of what a railroad is doing for a country. They may be derived by taxing transportation and travel more than these can bear, and consequently may impoverish instead of enriching a country.

In the Mississippi valley all the vast surplus of its products are exported to distant markets. Agriculture being the sole pursuit, all that is consumed, that the soil does not produce, is imported. The amount of transportation to the individual is therefore much greater there than in the eastern States, where the great variety of pursuits enables every man to supply his wants from the products of his neighbors. In New England, for this reason, all the roads through the agricultural sections have proved failures as far as regards investments. The New England farmer has but little to export. The west furnishes a great part of his breadstuffs. His only surplus which he has to send to market is stock and wool, and these are very limited in amount; consequently we find that roads cease to pay as soon as they are extended beyond the manufacturing districts. These facts were entirely overlooked by the projectors of these works; and as all the northern roads are built at very high cost, the disastrous condition of things which we now witness was unavoidable. The western railroads are built at about one fourth the cost of the eastern roads. With the same amount of business they would be good property, while the latter would be nearly worthless.

The western roads not only cost much less than the eastern, but for a long time to come they will be much better managed. Their construction requires the concurrence and favor of the whole community. At the present time a person who should attempt to benefit himself by thwarting or embarrassing a work of this kind would not be tolerated. The only Bulls and Bears there, are such as harmlessly roam over her wide pariries. The *manufactured article* has not yet crossed the Alleghanies.—The same amount of pay commands a much greater amount of service in the west than in the east. The lands necessary for a railroad are usually a gratuity. So, to a great extent, are the services of directors and officers. The necessity that is felt for the roads is accompanied with the conviction that the whole strength of the community is required to build it. This conviction of itself secures the most rigid accountability, and the most economical expenditure of means.

Improvement in Iron Manufacture.

We have been favored with the following extract from a letter from a reliable source, relative to an improvement in the manufacture of iron, which we understand has been introduced with great success into a furnace in Scotland:

"We learn that a leading iron manufacturer in this neighborhood has lately fitted up a furnace for the manufacture of pig iron upon the principle of conducting the coal gas that escapes from the mouth of the furnace and bringing it by flues underneath. This furnace turned out 245 tons in one week under this new process, against 180 per week, the greatest yield ever made in the old way. The amount of coal consumed per ton was only 2,600 lbs. against 4,200 lbs. per ton by the old process."

Notice to Contractors.

COVINGTON & LEXINGTON RAILROAD.

Sealed Proposals will be received at the office of the Covington and Lexington Railroad Company, in the city of Covington, until the 10th day of September next, for grading twenty miles of the Covington and Lexington Railroad, commencing at Covington and extending up the valley of the Licking river. The proposals will include all the excavations, embankments, and masonry for culverts—also the masonry for bridges.

Plans and specifications of the work to be done, and the terms of payment, may be seen at the office of the company, at any time between the first and tenth of September.

SYLVESTER WELCH,
Engineer Covington and Lexington R. R.
Covington and Lexington Railroad Office,
July 21st, 1850.

Iron Bridges.

The cause of the giving way of the iron bridge on the Erie railroad is believed to be the pressure of the ends of the bridge by expansion from extreme heat, against the abutments. This threw the bridge out of a true line, and of course diminished its strength. Such is the opinion of persons well qualified to judge in these matters.

We wish this company had made this the occasion to examine into the subject of the comparative safety of iron and wooden bridges instead of condemning the former, without offering any reason for their decision. Wooden bridges rely upon iron for the greater part of their strength. The proper question to be settled is this, whether it is safer to use iron in connection with wood, than without it. The wire bridge is probably the safest in use. In the truss it may be safer to use iron in combination with wood. Here is a case for the *Savans* to settle.

The Panama Railroad.

Mr. G. E. Sellers, of this city, has been appointed Mechanical Engineer of this road, to reside in New York, and an excellent appointment it is.—The company are now prosecuting their work vigorously. It is contemplated to complete the work to Georgona by June, 1851, and the whole in two years. The road will be first laid to Chagres on piles, to be filled with the excavations on the line. The rail is to be made of wood found along the line, is so hard that it is difficult to work it by common tools, and will, of course, be broader than the iron rail. A large portion of the locomotives, cars &c. will be constructed in this city. The pile driving machinery is to be forwarded from Utica, N. York.—*Cin. Gaz.*

Rhode Island.

The Woonsocket Union Railroad bill, which lately passed the General Assembly of Rhode Island, charters a road from Woonsocket to the State line at Killingly, there to connect with the road already chartered by the State of Connecticut from Willimantic to that place. These sections of road are designed to form a part of the "Air Line" to this city in conjunction with the Norfolk County road now open to Blackstone. A glance at the map will show that the completion of these two roads will form the most direct and expeditious railroad route to New York. The whole distance to be built over, in order to make the chain continuous, is about forty miles.

Railroad by the Sault Ste. Marie.

The railroad across the Portage is progressing finely, all the heaviest part of the work in grading being already done. They will commence immediately laying down the timber for the track, and, by the first of October, it is expected the cars will be running.—*Lake Superior Jour.*

Maine.

The receipts on the Atlantic and St. Lawrence railroad for the month of July, 1850, were

From passengers	$9,352 46
freight	5,479 35
Total	$14,831 81

The Great Eastern Railroad.

We see by the Provincial papers that the people of the Lower British Provinces respond with zeal to the views expressed and measures recommended by their delegates in the great convention recently held at Portland. This work will command their entire energies and resources, and these we believe to be equal to the task before them. We have no doubt but that government aid will supply what will be lacking of private supscription to complete the work.

Although the Provincials claim that the road through their portion of the country would pay as an investment, they do not base their reasons for its construction on this ground alone. They are going to construct it as a means of making available their resources, which are now lying dormant, and which require the stimulus of a railroad to bring them into use and notice. Unless they can construct this work, all their interests will continue retrograde as they have done for years past. They look upon the money to be expended in making a railroad as an investment for making other kinds of property valuable. The aggregate increase of the value of the whole is to compensate for any loss incurred in the construction of the road.

We think that a field is here opened for some of our Yankee contractors, and we soon expect to hear from some of them in this new quarter.

Mining Agency.

We take pleasure in calling particular attention to the Advertisement of Captain O. H. Matthews, mining agent, now at Toronto, Canada. Mr. M. has been most favorably known for several years, in connection with mining operations on Lake Superior, as well as for his scientific attainments and practical knowledge in this business. Parties or companies wishing to engage in mining, or desiring information in regard to mineral localities, will find it to their advantage to apply to this gentleman.

For the American Railroad Journal.

Railroads in New York.

In your paper of a recent date you alluded to the extension of railroads in the streets of cities. This is an important matter and one that should be early considered in New York. The locomotive engine is the safest power to move property and persons on rails in a street that can be used. It is never capricious in its movement—it proceeds upon the same line. It may be regulated to any rate of speed required. It will move the largest number of persons, or amount of property with the least occupancy of the street of any power whatever.

For a large train filled with persons, or loaded with property, it actually occupies the street not much more than a single omnibus or a large loaded dray. The principal objection made to the use of this power is that horses will be frightened by

it. A ready answer is that horses very soon become used to it, and where the locomotive is in common use in the streets horses are no more frightened at them than they are at canal boats or steam boats. They very soon become accustomed to them.

The locomotive will move passengers in cars upon rails in a crowded city more safely to themselves and to all others using the streets than they can be moved by animal power in any way whatever.

The practice that obtains in some cities of drawing out cars single when loaded, by horses, and after enough are so drawn out through the streets, to form a train of them for the locomotive is really a childish way of doing the business. It occupies the streets more and is more hazardous than if the whole are formed into a train at the terminus and drawn out at a proper speed by the locomotive.—Time is saved, and the railroad is thus made far more efficient and more comfortable to passengers. Every consideration that adds to the efficiency and comfort of the railway is an importance to the city. The railroad to be right should be so laid and managed as to do its whole business by the locomotive without steamboat or horse connection. Streets in cities must be used for this great improvement. It is a legitimate public use of them, for in no other way can so great a transit of persons and property be made. The sooner the great lines are operated by locomotives to and from the centre of the city, the quicker shall we derive the important advantages that the railways will surely produce. W.

EMERSON'S

PATENT

CORRESPONDING VENTILATORS,

For Ships, Steamers, etc.,

Manufactured by

CHILSON, ALLEN, WALKER & CO.,
351 Broadway, New York.

Notice to Contractors.

SEALED PROPOSALS will be received at the office of the James River and Kanawha Company in Richmond, until the 1st day of October next, for the construction of the Piers and Abutments of the Bridges across James River at New Canton, Hardwicksville and Bent Creek. This work will be paid for in cash. Besides the usual reservation of 20 per cent. on the monthly estimates, the contractor or contractors will be required to give ample security, satisfactory to the Board of Directors, for the completion of the work at the time and in the manner specified in the contracts.

Plans of the above works will be exhibited and specifications thereof delivered to the contractors at the office of John Couty, the Assistant Engineer in charge of the same in Columbia.

WALTER GWYNN,
Chief Eng. J. R. & K. Co.

August 16, 1850.

MINING AGENCY.
Capt. O. H. Matthews,

Civil and Mining Engineer, F. G. S., London, etc.

HAVING completed his three years engagement on Lake Superior, is open to negotiate for another appointment as Mining Agent, or Superintendent of Mines. Also, to give his opinion and advice upon Mineral Lands, to Buyers and Sellers of Stock, or to be consulted on any section in this important branch of national industry.

The most implicit confidence may be relied on, and immediate attention given to all communications (prepaid). Address Capt. O. H. Matthews, Toronto,

July 27th, 1850. 3m

Great American Engineering

AND MECHANICAL WORK, just published in medium folio One Dollar, 75 cts. to Subscribers.

Part VII of "Specimens of the Stone, Iron & Wood Bridges, Viaducts, Tunnels, Culverts, &c., &c., of the United States Railroads." By George Duggan, Architect and Civil Engineer.

The present part contains beautifully executed plans, elevations, sections and details of the elegant timber Bridge, (Burr's Patent,) 150 feet span, across Salmon River, Malone, on the line of the Northern—Ogdensburg railroad, and isometrical views of Bridges 30, 40 60, 82 and 88 feet span on the line of the Utica and Syracuse railroad, with specifications, form of contract, &c. &c., for the Connecticut River railroad.

"It is a work that was a great desideratum, and must prove of great benefit to the engineering profession generally, and especially to the tyro in practical engineering and mechanical knowledge; in truth it strikes us, that it would require years of labor and patient toil on the part of a young engineer to prepare the drawings, and collect the information that will be embodied in this work, and can now be secured for the trifling sum of $9"—[Scientific Amer. March 16, 1850.

In connection with this subject (Iron Railroad Structures) we take occasion to call attention again to Mr. Duggan's valuable and expensive publication, exhibiting drawings, with full descriptions of the various stone, iron and wooden bridges, viaducts, tunnels, culverts, etc., of all the Railroads in the United States. Mr. Duggan is an accomplished Architect and Civil Engineer, who came from Ireland to this country to exercise his profession; but finding railroad construction here, in many respects, different from that he had been accustomed to in Europe, he applied himself to the study of our system; and the fruits of his researches and investigations embodied in this work, are well calculated to meet the exigencies of engineers, and to assist draughtsmen, bridge builders, mechanics and students.—[N. Y. Journal of Commerce, Feb. 14, 1850.

Published by GEORGE DUGGAN,
300 Broadway, New York.

To whom all communications should be addressed, and subscriptions forwarded.

Gloucester Iron Works,
GLOUCESTER, NEW JERSEY,
NEARLY OPPOSITE PHILADELPHIA.

THE subscribers having made extensive alterations in their works, are now prepared to receive orders for all kinds of Stationary and Marine Engines, Boilers, Locomotives, Sugar Mills, and every description of Mill Work.

Also—Orders for Iron and Brass Castings executed with despatch.

Having secured the valuable services of Mr. David Matthew as Superintendent (who has been for five years foreman in the Iron Works of John Watchman, now the Vulcan Works, Baltimore, and for 12 years superintendent of the Mohawk and Hudson and the Utica and Schenectady Railroads, New York,) they feel confident that all orders entrusted to them will be faithfully executed.

Having an extensive Wharf in front of their works, it will afford a safe harbor for all classes of steam vessels that may require repairs during the winter.

C. M. & J. C. SITER.

Gloucester, July 24, 1850. 1m.

Rosendale Cement.

THE NEWARK AND ROSENDALE LIME AND CEMENT CO. are now manufacturing at their works in NEWARK, N. J., and Ulster county, N.Y., a very superior article of *Hydraulic Cement*—also Lime Calcine Plaster, etc. Contractors and dealers will find it to their advantage to call or make application before purchasing elsewhere. All communications addressed to the subscriber, at Newark, N.J., will be punctually attended to.

1y*15 HENRY WILDE, Secretary.

Railroad Instruments.

THEODOLITES, TRANSIT COMPASSES, and Levels, with Fraunhofers Munich Glasses, Surveyor's Compasses, Chains, Drawing Instruments, Barometers, etc., all of the best quality and workmanship, for sale at unusually low prices, by

E. & G. W. BLUNT,
No. 179 Water St., cor. Burling Slip.
New York, May 19, 1849.

CUT NAILS OF BEST QUALITY, BAR IRON (including Flat Rails) manufactured and for sale by FISHER, MORGAN & CO.,
75 N. Water St., Philadelphia.

Great Work on Bridge Building, etc., etc.

JUST published in medium folio, One Dollar, 75 cts. to subscribers.

Part I. of a "THEORETICAL AND PRACTICAL TREATISE ON THE CONSTRUCTION OF BRIDGES IN STONE, IRON AND WOOD," By George Duggan, Architect and Civil Engineer.

The present part contains beautifully executed plans, elevations, sections, and centering, of the Bridge of St. Maixence, France, by M. Perronet, the eminent Architect and Engineer, and plans, elevations, sections, and details of the oblique Timber Bridge, 700 ft. long, constructed for a double track across the River Tyne, on the line of the Newcastle and Carlisle railroad, by John Blackmore, C. E., with an introductory article on the relative merits of the various materials employed in the construction of Bridges, as regards economy, strength and durability, and critical remarks on the various forms of bridges designed and constructed by the most eminent architects and engineers in Europe and America.

"PART VI. of Specimens of the Stone, Iron and Wood Bridges, etc., etc., of the United States Railroads," By George Duggan, Architect and Civil Engineer, contains specimens of the plates and letter press intended for the APPENDIX, being the commencement of a complete Treatise on the Theory and Practice of Bridge Building. This will be one of the most valuable works on the subject ever presented to the attention of engineers in this country—condensing the most important information on this branch of architecture contained in the writings of the most eminent scientific men in the French, German, Italian, and English languages, in the course of the last and present century. It will be illustrated by numerous accurate representations of bridges of the greatest celebrity in modern times. Elaborate articles will be given on the strength, property, and uses of the different materials employed, and on the most approved methods of constructing Coffer Dams, Foundations, Centering, etc., with descriptions and drawings of the various engines and Machines that were found most useful in constructing the works, and a selection of such specifications as may be of service to the practical bridge builder. The sixth number treats of the Application of Iron to Railroad Structures, and is illustrated by beautiful drawings of the Bridge across the Delaware at Saw Mill Rift on the Erie Railroad, and of the bridge over Fairfield street, on the Manchester and Birmingham Railroad. The great success of this work thus far is the best tribute to its scientific merit and its adaptation to the wants of the American engineer."—[New York Daily Tribune, June 28, 1850.

Published by George Duggan, 300 Broadway, New York, to whom all communcations should be addressed and subscriptions forwarded.

☞ Parties remitting Mr. Duggan $5. and the remainder $4 when they have been supplied with the first six parts of the "Theoretical and Practical Treatise on Bridge Building, etc.," shall receive it monthly as published. To those making Mr. Duggan a present remittance of $9, the work will be forwarded post free to any part of the United States.

American Railway Guide,
AND POCKET COMPANION FOR THE
UNITED STATES;

CONTAINING Correct Tables, showing the time for starting of trains from all stations, distances, fares, etc., on all the Railway lines in the U. States; also many of the principal Steamboat and Stage routes—accompanied by a complete RAILWAY MAP. Price, single copies 12½ cts., or $1 per annum. Published on the first of every month, corrected from returns furnished by the Railway Superintendents throughout the Union.

This book has been compiled somewhat on the plan of Bradshaw's Guide, with such improvements in size, form and arrangement as have seemed desirable; and the publisher confidently hopes it will not be found liable to the objections of incompleteness and incorrectness, which have been made, and justly too, against various other similar works heretofore issued.

The subscriber having had the management of the NEW YORK PATHFINDER almost from its commencement, has enjoyed superior facilities in obtaining information relating to the thoroughfares of travel, and is therefore well qualified to prosecute with success the arduous undertaking of furnishing a complete and correct national guide book.

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Ogden & Martin's ROSENDALE CEMENT.

WE are prepared to enter into arrangements for supplying our Cement for public works or other purposes. We warrant the cement equal in every respect to any manufactured in this country. It attains a great degree of hardness, setts immediately under water, and is a superior article for masonry coming in contact with water, or requiring great strength.

For sale in tight barrels, well papered, at their office by OGDEN & MARTIN, 104 Wall st.

February 16, 1850. 1y*

The above cement is used in most of the fortifications building by government.

Railroad and Mathematical Instruments.

KUNS & BASELER, Mathematical Instrument makers, manufacture and keep for sale all kinds of mathematical instruments: also drawing instruments, scales and balances for the use of chemists, professional gentlemen, jewellers, etc., etc., of the most perfect description, at the lowest price, at 81 Nassau street, New York.

Ibbotson, Brothers & Co's CELEBRATED CAST STEEL AND

Best Cast Steel Royal Improved Files, well known as better adapted for Engineers' and Machinists' purposes than any now in use in the United States.

Every description of Square, Octagon, Flat and Round Cast Steel, Sheet, Shovel and Railway Spring Steel, etc., and Steel to order for any purposes—manufactured at their works in Sheffield—and universally known by the old stamp "Globe."

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Pig and other Iron also contracted for. Sole Agent for "*Baxter's Machine and Burning Oil*"—particularly adapted for "*Railroads*" and other Machinery—Preferred to Sperm by the many now using it, and 25 *per cent. cheaper.*

Coal.

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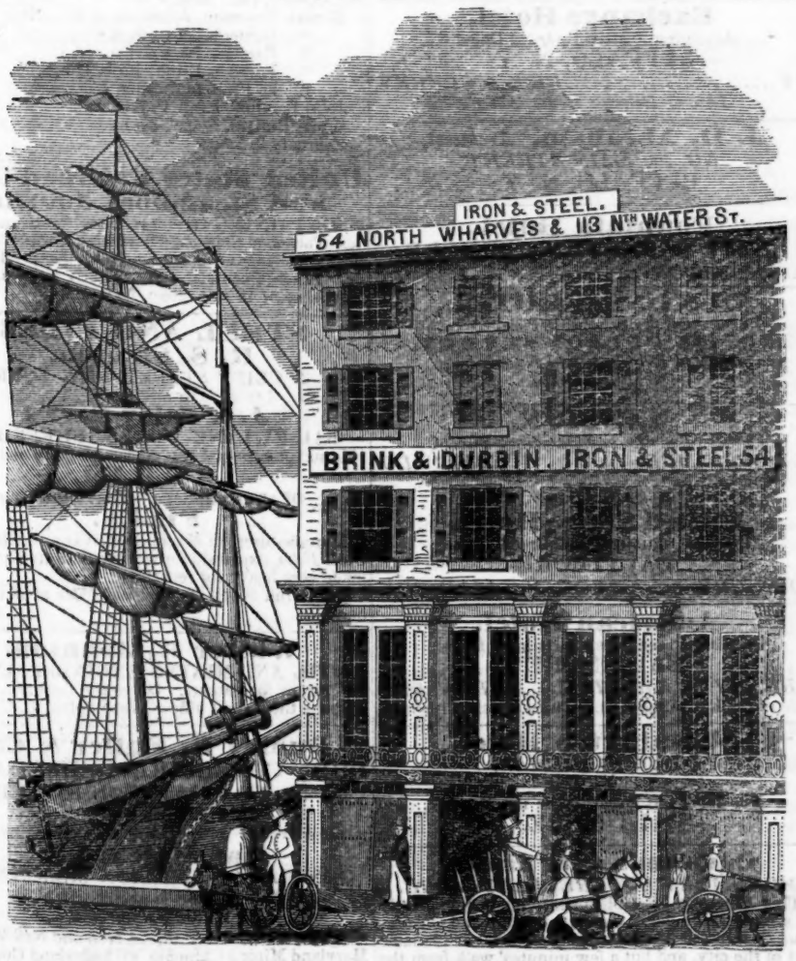
H. B. TEBBETTS, No. 40 Wall St., New York.

May 12, 1849. 1m19

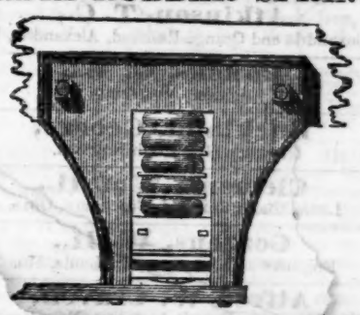


To Merchants, Railroad Companies, Machinists and Boiler Makers.

THE subscribers beg leave to call attention to their very large stock of *Iron* and *Steel*—of American, English, Swede and Norway make—of all the different kinds in use. Also, Railroad Iron, Ship, Boat and Railroad Spikes. They are also Agents for the *Best Pennsylvania Locomotive Boiler and Tank Iron*, each sheet of which will be *stamped and warranted*, at lowest mill prices. Our prices for all kinds of iron will be found *very low*, either for cash or approved credit.

BRINK & DURBIN, *Philadelphia.*

FULLER'S PATENT INDIA RUBBER SPRING.



THESE SPRINGS ARE THE CHEAPEST, the lightest and most durable of any yet known. They are easily applied to new or old cars, and there is small possibility of any accident occurring to them.

Other parties through Mr. Ray set up claims to an India Rubber Spring which, though the same in principle, is very inferior in its working and durability.—Actions are in progress for an Infringement on Fuller's Patent against parties using that Spring.

The superiority of Fuller's Spring over that claimed by Mr. Ray is fully established and has frequently been testified to. The following are from gentlemen who have had much experience with both Springs.

—

"It will afford me pleasure to recommend your springs to the companies in this region, in preference to Ray's which I am confident are inferior in mechanical arrangement to yours." JOHN M'RAE, Engineer S. Carolina R. R., Charleston.

—

"I do not hesitate to allow you to say that I concur in Mr. M'Rae's opinion that Ray's springs are inferior in mechanical arrangement to Fuller's. I repeatedly expressed that opinion long before Mr. M'Rae had seen your springs (as I believe) and entertain it still." WM. PARKER, Gen'l Supt. of Baltimore and Ohio R. R.

—

Office of Sup't Norwich & Worcester R.R Co. December 26, 1849.

"I most fully concur in the opinion of Jno. McRae, Engineer of S. Carolina Railroad, that 'Rays Springs are inferior to Fuller's Springs;' and shall with pleasure recommend them to all Railroad Companies for adoption. I have used both springs on this road and have no hesitation in saying that I should in all cases prefer Fuller's Spring."

SAM'L H. P. LEE, JR., Sup't and Engineer.

—

Office B. & P. R. R. Co., Boston, 20th December, 1849.

"This company have cars fitted up with both Ray's and Fuller's 'Metallic India Rubber Springs,' and do not hesitate to say that Fuller's arrangement *very much superior* to Ray's.

W. RAYMOND LEE, Supt.

—

The following result has been obtain l by experiment upon one railroad.

A set of Trucks fitted with Steel Springs cost	$190·77	and weigh	2355 lbs.
The same with Fuller's Springs, . . .	131·71	"	1911 lbs.
Difference, . . .	$59·06	"	444 lbs.

Not only is there an advantage in the cost, but owing to the great reduction in weight, the car can be made lighter throughout, and so an enormous saving in weight may be effected in a Train.

AGENTS.

G. M. KNEVITT, 38 Broadway, N. Y.,
JOHN THORNLEY, 110 Chestnut St., Philad.
The BOSTON BELTING CO., Milk st., Boston.

January 2, 1850.

American Cast Steel.

THE ADIRONDAC STEEL MANUFACTURING CO. is now producing, from American iron, at their works at Jersey City, N.J., Cast Steel of extraordinary quality, and is prepared to supply orders for the same at prices below that of the imported article of like quality. Consumers will find it to their interest to give this a trial. Orders for all sizes of hammered cast steel, directed as above, will meet with prompt attention.

May 28, 1849.

ENGINEERS.

Atkinson, T. C.,
Alexandria and Orange Railroad, Alexandria, Va.

Bancks, C. W.,
Civil Engineer, Vicksburg, Miss.

Buckland, George,
Troy and Greenbush Railroad.

Clement, Wm. H.,
Little Miami Railroad, Cincinnati, Ohio.

Cozzens, W, H.,
Engineer and Surveyor, St. Louis, Mo.

Alfred W. Craven,
Chief Engineer Croton Aqueduct, New York.

Davidson, M. O.,
Eckhart Mines, Alleghany Co., Maryland.

Fisk, Charles B.,
Cumberland and Ohio Canal, Washington, D. C.

Felton, S. M.,
Fitchburgh Railroad, Boston, Mass.

Floyd-Jones, Charles,
South Oyster Bay, L. I.

Gzowski, Mr.,
St. Lawrence & Atlantic Railroad, Montreal, Canada.

Gilbert, Wm. B.,
Rutland and Burlington Railroad, Rutland, Vt.

Grant, James H.,
Nashville and Chattanooga R. R., Nashville, Tenn.

S. W. Hill,
Mining Engineer and Surveyor, Eagle River, Lake Superior.

Hewson, M. Butt,
Memphis, Tenn.

Holcomb, F. P.
Southwestern Railroad, Macon, Ga.

Johnson, Edwin F.
New York and Boston Railroad, Middletown Ct.

Latrobe, B. H.,
Baltimore and Ohio Railroad, Baltimore, Md.

Miller, J. F.,
Worcester and Nashua Railroad, Worcester, Mass.

Morris, Elwood,
Schuylkill Navigation, Schuylkill Haven, Pa.

Morton, A. C.,
Atlantic and St. Lawrence Railroad, Portland, Me.

McRae, John,
South Carolina Railroad, Charleston, S. C.

Nott, Samuel,
Lawrence and Manchester Railroad, Boston,

Prichard, M. B.,
East Tennessee and Georgia R. R., Cleveland, Tenn.

Roebling, John A.,
Trenton, N. J.

W. Milnor Roberts,
Bellefontaine and Indiana Railroad, Marion, Ohio.

Roberts, Solomon W.,
Ohio and Pennsylvania Railroad, Pittsburgh, Pa.

Sanford, C. O.,
South Side Railroad, Virginia.

Schlatter, Charles L.,
Northern Railroad (Ogdensburg), Malone, N. Y.

Sours, Peter,
Rahway, New Jersey.

Stark, George.,
Bost., Con. and Mont. R. R., Meredith Bridge, N. H.

Steele, J. Dutton,
Pottstown, Pa.

Trautwine, John C.,
Panama Railroad—Address through office of Panama Railroad Co., 78 Broadway, N. Y.

Trimble, Isaac R.,
Philad., Wil. & Baltimore Railroad, Wilmington, Del.

Tinkham, A. W.,
United States Fort, Bucksport, Me.

Thomson, J. Edgar.,
Pennsylvania (Central) Railroad, Philadelphia.

Troost, Lewis,
Alabama and Tennessee Railroad, Selma, Ala.

Whipple, S.,
Civil Engineer and Bridge Builder, Utica, N. Y.

Williams, E. P.,
Auburn and Schenectady Railroad, Auburn, N. Y.

Williams, Charles H.,
Milwaukie, Wisconsin.

HOTELS.

Exchange Hotel,
Adjoining Eastern Railroad Depot,
BUFFALO, N. Y.
BY.....FISK & SPERRY,
Late of Delevan House, Albany.

J. D. Abraham, *Architect,*
NO. 300 *MAIN STREET,*
BFFFALO, N. Y.

Fountain Hotel,
LIGHT STREET, BALTIMORE,
P. THURSTON.....Proprietor.

DUNLAP'S HOTEL,
On the European Plan,
NO. 135 FULTON STREET,
Between Broadway and Nassau St.,
NEW YORK.

MANSION,
Corner of Maine and Exchange Streets,
P. DORSHIMER. *BUFFALO.*

GUY'S
United States Hotel,
(Opposite Pratt street Railroad Depot,)
BALTIMORE.
JOHN GUY. *WILLIAM GUY.*

American Hotel,
Pratt street, opposite the Railroad Depot,
BALTIMORE.
HENRY M. SMITH.....Proprietor.
Late of the Exchange & St. Charles Hotels, Pittsburg.

Washington Hotel,
BY JOHN GILMAN,
$1 *Per Day.*
No. 206 Pratt street, (near the Depot,)
BALTIMORE.

Barnum's City Hotel,
MONUMENT SQUARE, BALTIMORE.
This Extensive Establishment, erected expressly for a Hotel, with every regard to comfort and convenience, is situated in the centre and most fashionable part of the city, and but a few minutes' walk from the Railroad Depots and Steamboat Landings.
The House has lately undergone a thorough repair, embracing many valuable improvements, and will accommodate 250 Guests. BARNUM & CO.

JONES' HOTEL,
NO. 152 CHESTNUT STREET,
PHILADELPHIA.
BRIDGES & WEST, ... Proprietors.

BUSINESS CARDS.

Lithography.
JOHN P. HALL & CO.,
161 Main st., Buffalo, (Commercial Advertiser Build.)
Are prepared to execute all kinds of Lithography in good stole and at reasonable rates. Particular attention wil be paid to Engraving Railroad Maps, Engineer's Plans and drafts, etc., and orders in this line are respectfully solicited.

J. T. Hodge
Will attend to the examination of mining tracts near Lake Superior, and prepare Reports and Maps.
Address, during the Summer,
[Ontanagon Postoffice, Lake Superior.

Cumberland Steam Coal,
FROM THE
FROSTBURG MINES, MD.
H. A. TUCKER,
Agent of Frostburg Coal Co.
No. 50 Wall Street, New York.

Eaton, Gilbert & Co.,
Railroad Car, Coach and Omnibus Builders,
TROY, N. Y.

Nathan Caswell,
METAL BROKER, 69 WALL ST., N.Y.
For the Purchase and Sale of Railroad Iron (new and old,) Boiler Plates, Pig and Bar Iron, Lead, Tin, Copper, Spelter, etc. Refers to
Messrs. Boorman, Johnston, & Co., New York.
" Grinnell, Minturn & Co., "
" Barston, Pope & Co., "
" Earps & Brink, Philadelphia.
" E. Pratt & Brother, Baltimore.
John Barstow, Esq., Providence.
Lewis Bullard, Esq., Boston.
February 9, 1850. 6m*

United States Railroad Guide and Steamboat Journal.
CONTAINING OFFICIAL TIME ADVERTISEMENTS, Tables of Stations, Distances, Fares, Time, etc., with much miscellaneous matter for the travelling public. Price 12 cents a copy. Yearly subscription $1. Published at 43 Ann street, New York.

STEEL AND FILES.
R. S. Stenton,
20 CLIFF STREET, NEW YORK,
AGENT FOR
J. & Riley Carr's
BAILEY-LANE WORKS, SHEFFIELD,
Manufacturers of Cast, Shear, German and Blister
STEEL
Of all descriptions. *Warranted* Good
FILES.
Manufacturers of Machinists' Warranted Best Cast Steel *Files*, expressly for woring upon Iron and Steel, made very heavy for recutting.
☞ A full Stock of *Steel* and *Files* at all times on hand. 6m4

Walter R, Johnson,
CIVIL AND MINING ENGINEER AND ATTORNEY for Patents. Office and Laboratory, F St., opposite the Patent office, Washington, D. C.

Dudley B. Fuller & Co.,
IRON COMMISSION MERCHANTS,
No. 139 GREENWICH STREET,
NEW YORK.

Manning & Lee,
GENERAL COMMISSION MERCHANTS,
NO. 51 EXCHANGE PLACE,
BALTIMORE.
Agents for Avalon Railroad Iron and Nail Works. Maryland Mining Company's Cumberland Coal 'CED —'Potomac' and other good brands of Pig Iron.

Cop Waste.
CLEAN COP WASTE, suitable for cleaning Railroad, Steamboat and Stationary Engines, constantly an hand and for sale by
KENNEDY & GELSTON,
5½ Pine St., New York.
October 27, 1849, 3m

Railroad Car Manufacturer's Furnishing Store.
F. S. & S. A. MARTINE,
IMPORTERS AND MANUFACTURERS OF
RAIL ROAD CAR & CARRIAGE LININGS,
PLUSHES, CURTAIN MATERIALS, ETC.,
112 WILLIAM ST., NEAR JOHN.
3-4 and 6-4 Damasks, Union and Worsted; Moreens, Rattinetts, Cloths, Silk and Cotton Velvets, English Buntings

Samuel Kimber & Co.,
COMMISSION MERCHANTS
WILLOW ST. WHARVES, PHILADELPHIA.
AGENTS for the sale of Charcoal and Anthracite Pig Iron, Hammered Railroad Car and Locomotive Axles, Force Pumps of the most approved construction for Railroad Water Stations and Hydraulic Rams, etc., etc.
July, 27, 1849.

James Herron, *Civil Engineer,*
OF THE UNITED STATES NAVY YARD,
PENSACOLA, FLORIDA.,
PATENTEE OF THE
HERRON RAILWAY TRACK.
Models of this Track, on the most improved plans, may be seen at the Engineer's office of the New York and Erie Railroad.

To Railroad Companies.
—WROUGHT IRON WHEELS—
SAFETY AND ECONOMY.
NORRIS' LOCOMOTIVE WORKS,
SCHENECTADY, NEW YORK,
Are Manufacturing Wrought Iron Driving, Truck, Tender, and Car Wheels—made from the best American Iron. Address E. S. NORRIS.
May 16, 1849.

George O. Robertson,
BROKER IN SCOTCH AND AMERICAN PIG IRON;
Bar Iron, Lead, Spelter, Tin, Copper, etc.,
No. 4 Liberty Place, MAIDEN LANE,
(Near Broadway,)
NEW YORK

Manufacture of Patent Wire ROPE AND CABLES,
For Inclined Planes, Suspension Bridges, Standing Rigging, Mines, Cranes, Derrick, Tillers, &c., by
JOHN A. ROEBLING, Civil Engineer,
TRENTON, N. J.

Doremus & Harris,
ANALYTICAL & CONSULTING CHEMISTS,
179 BROADWAY, NEW YORK.
☞SCHOOL OF CHEMISTRY.☜

To Engineers and Surveyors.
E. BROWN AND SON Mathematical inst. makers No. 27 Fulton Slip, New York, make and keep for sale, Theodolites, Levelling inst., Levelling rods, Surveyors Compasses, and Chains, Cases of Mathematical drawing insts. various qualities, together with a general assortment of Ivory Scales and small insts. generally used by Engineers.

Ranstead, Dearborn & Co.,
MANUFACTURERS OF
LOCOMOTIVE CRANKS AND CAR AXLES,
ALSO
WROUGHT IRON SHAFTING,
And All Kinds of Hammered Shapes.
Forge at Commercial Point, Dorchester,
Office 25 Foster's Wharf, opposite No. 211 Broad St.
BOSTON.

Henry J. Ibbotson,
IMPORTER of Sheffield and Birmingham Goods. Also, Agent for the Manufacture of Telegraph Wire. 218 PEARL ST., NEW YORK.

Cumberland, (Md.,) Coals for Steaming, etc.
ORDERS RECEIVED FOR AND FILLED by J. COWLES, 27 Wall St., N. Y.

Samuel D. Willmott,
MERCHANT, AND MANUFACTURER OF
CAST STEEL WARRANTED SAWS,
—AND FILES—
IMPORTER OF THE
GENUINE WICKESRLY GRINDSTONES
NO. 8 LIBERTY STREET,
NEW YORK.

IRON.

Railroad Iron.
3,000 TONS C. L. MAKE 63½ lbs. per yard, now landing and to arrive.
Also contracts made for future delivery of above superior make English Iron.
300 Tons Banks Best Iron, Round, Square and Flat.
200 " English Bar " " " "
10 " 9-16 Square Iron for Railroad Spikes.
For sale in lots to suit purchasers by
DAVID W. WETMORE.
New York, March 26, 1850. 3m

Railroad Iron.
THE Undersigned, Agents for Manufacturers, are prepared to contract to deliver Rails of superior quality, and of any size or pattern, to any ports of discharge in the United States.
COLLINS, VOSE & CO.,
74 South St.
New York, June 1, 1850.

Railroad Iron.
1,500 Tons weighing 58 lbs. per lineal yard.
500 " " 57 " "
500 " " 56 " "
500 " " 60 & 61 lbs, "
Also 2½x½ flat rails. All the above being of approved patterns. For sale by
DAVIS, BROOKS, & CO.,
68 Broad street.
N.B.—Rails imported on commission, or at a fixed price.

Iron.
Pig Iron, Anthracite and Charcoal; Boiler and Flue Iron, Spring and Blistered Steel, Nail Rods, Best Refined Bar Iron, Railroad Iron, Car Axles, Nails, Stove Castings, Cast Iron Pipes of all sizes, Railway Chairs of approved patterns' for sale by
COLEMAN, KELTON & CAMBELL,
109 N. Water St., Philadelphia.

IRONDALE PIG METAL, MANUFACTURED and for sale by the Bloomsburg Railroad Iron Co.
LINDLEY FISHER, Treasurer.
75 N. Water St., Philadelphia.

Railroad Iron.
2000 Tons, weighing 58 pounds per lineal yard, of the most approved pattern of T rails, in store and to arrive, for sale by
COLLINS, VOSE & CO.,
74 South St.
New York, June 1, 1850.

Railroad Iron.
1675 Tons, weighing about 61 lbs. per yard, 90 tons, weighing about 52 lbs. per yard, and 825 tons, weighing about 53½ lbs. per yard, of the latest and most approved patterns of T rail, for sale by
BOORMAN, JOHNSTON & CO.,
119 Greenwich street.
New York, Feb. 25, 1850.
N.B.—B., J. & Co are also prepared to take contracts for English rails, delivered in any of the Atlantic ports of the Unitad States.

Railroad Iron.
THE UNDERSIGNED, HAVING made arrangements abroad, are prepared to contract for the delivery of Foreign rails, of approved brands upon the most favorable terms.
They will also make contracts for American rails, made at their Trenton works, from Andover Iron, in whole or in part, as may be agreed upon.
They are prepared to furnish Telegraph, Spring and Market Wire; Braziers and Wire Rods; Rivets and Merchant Bars to order, all made exclusively from Andover Iron. The attention of parties who require iron of the *very best* quality for special purposes, is respectfully invited. COOPER & HEWITT,
17 Burling Slip, New York.
February 15, 1850.

Glendon Refined Iron.
Round Iron, Band Iron, Hoop Iron,
Square " Flat " Scroll "
Axles, Locomotive Tyres,
Manufactured at the Glendon Mills, East Boston, for sale by GEORGE GARDNER & CO.,
5 Liberty Square, Boston, Mass.
Sept. 15, 1849. 3m37

PATENT HAMMERED RAILROAD, SHIP & BOAT SPIKES.—The Albany Iron Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for rail roads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscribers at the works will be promptly executed.
JOHN F. WINSLOW, *Agent.*
Albany Iron and Nail Works, Troy, N. Y.
The above Spikes may be had at factory prices, of Erastus Corning & Co Albany; Merritt & Co., New York; E. Pratt & Brother, Baltimore Md

LAP—WELDED
WROUGHT IRON TUBES
FOR
TUBULAR BOILERS,
FROM ONE AND A QUARTER TO SEVEN INCHES IN DIAMETER.
THE ONLY Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.
THOMAS PROSSER & SON, Patentees,
28 Platt street, New York.

Railroad Iron.
THE UNDERSIGNED ARE PREPARED TO contract for the delivery of English Railroad Iron of favorite brands, during the Spring. They also receive orders for the importation of Pig, Bar, Sheet, etc. Iron. THOMAS B. SANDS & CO.,
73 New street,
February 3, 1849. New York.

Iron Store.
THE Subscribers, having the selling agency of the following named Rolling Mills, viz: Norristown, Rough and Ready, Kensington, Triadelphia, Pottsgrove and Thorndale, can supply Railroad Companies, Merchants and others, at the wholesale mill prices for bars of all sizes, sheets cut to order as large as 58 in. diameter; Railroad Iron, domestic and foreign; Locomotive tire welded to given size; Chairs and Spikes; Iron for shafting, locomotive and general machinery purposes; Cast, Shear, Blister and Spring Steel; Boiler rivets; Copper; Pig iron, etc., etc.
MORRIS, JONES & CO.,
Iron Merchants,
Schuylkill 7th and Market Sts., Philadelphia.
August 16, 1849. 1y33

Railroad Iron.
THE MOUNT SAVAGE IRON WORKS, Alleghany county, Maryland, having recently passed into the hands of new proprietors, are now prepared, with increased facilities, to execute orders for any of the various patterns of Railroad Iron. Communications addressed to either of the subscribers will have prompt attention. J. F. WINSLOW, *President*
Troy, N.Y.
ERASTUS CORNING, Albany.
WARREN DELANO, Jr., N.Y.
JOHN M. FORBES, Boston.
ENOCH PRATT, Baltimore, Md.
November 6, 1848.

Railroad Iron.
THE SUBSCRIBERS ARE PREPARED TO take orders for Railroad Iron to be made at their Phœnix Iron Works, situated on the Schuylkill River, near this city, and at their Safe Harbor Iron Works, situated in Lancaster County, on the Susquehannah river; which two establishments are now turning out upwards of 1800 tons of finished rails per month.
Companies desirous of contracting will be promptly supplied with rails of any required pattern, and of the very best quality.
REEVES, BUCK & CO.
45 North Water St. Philadelphia,
March 15, 1849.

Monument Foundry.

A. & W. DENMEAD & SON,
Corner of North and Monument Sts.,—Baltimore,
HAVING THEIR
IRON FOUNDRY AND MACHINE SHOP
In complete operation, are prepared to execute faithfully and promptly, orders for
Locomotive or Stationary Steam Engines,
Woolen, Cotton, Flour, Rice, Sugar Grist, or Saw Mills,
Slide, Hand or Chuck Lathes,
Machinery for cutting all kinds of Gearing.
Hydraulic, Tobacco and other Presses,
Car and Locomotive patent Ring Wheels, warranted,
Bridge and Mill Castings of every description,
Gas and Water Pipes of all sizes, warranted,
Railroad Wheels with best faggotted axle, furnished and fitted up for use, complete

☞Being provided with Heavy Lathes for Boring and Turning Screws, Cylinders, etc., we can furnish them of any pitch, length or pattern.

☞ Old Machinery Renewed or Repaired—and Estimates for Work in any part of the United States furnished at short notice.

June 8, 1849.

Iron Wire.

REFINED IRON WIRE OF ALL KINDS, Card, Reed, Cotton-flyer, Annealed, Broom, Buckle, and Spring Wire. Also all kinds of Round, Flat or Oval Wire, best adapted to various machine purposes, annealed and tempered, straightened and cut any length, manufactured and sold by

ICHABOD WASHBURN.

Worcester, Mass., May 25, 1849.

Wheel, Forge and Foundry Iron.

LOCUST GROVE Wheel Iron of great strength and superior chilling property.

Balt. Charcoal Forge Iron, from Patuxent, Curtis Creek and Gunpowder furnaces.

Elkridge Foundry Iron, of superior strength and softness. Anthracite and Charcoal Iron from Pennsylvania and Virginia. Gas and Water Pipes, Lamp Posts from Elkridge furnace.

LEMMON & GLENN,
6m9 62 Buchanan's Wharf, Baltimore.

S. S. Keyser & Co., IRON WAREHOUSE,

Corner of South and Pratt Streets,
BALTIMORE, MD.

Selling Agents for the Rough and Ready Bar Iron and Elk Boiler and Flue Iron Rolling Mills, Sarah and Taylor Furnaces, and Wrightsville Hollow Ware Foundry, and Dealers in Bar and Sheet Iron, and Cast, Sheer, German, Blister, Spring and Electerised Steel, etc., etc.

Smith & Tyson,

GENERAL COMMISSION MERCHANTS,
No. 25 South Charles St., Baltimore, Md.

AGENTS for the Celebrated Columbia Pig Iron, suitable for Car Wheels and Chilled Rolls.

Columbia refined Charcoal Blooms; Refined Charcoal Juniatta Billet Iron for Wire; Refined Iron for Bridging, of great strength; Cut Nails, Spikes, and Brads; Railroad Spikes and Wrought Chairs. 22tf

Stickney & Beatty,

DEALERS IN IRON AND IRON MANUFACTURERS.

AGENTS for the Balt. City Rolling Mill, from which establishment they are prepared to furnish Ellicott's round, square, and flat bar iron, puddled and charcoal boiler plates and billet iron—also agents for the sale of the Laurel and Maryland (Balt.) charcoal forge pig irons, Balt. hard iron for chilling wheels, anti-Eatam nails, Catoctin foundry iron, boiler blooms from the Caledonian works, Wm. Jessop & Son's cast steel, Coleman's blister steel and nail rods, hoop, band, sheet, oval and common English iron.

Nos. 18 and 20 South Charles st., Baltimore.

Railroad Iron.

CONTRACTS made by the subscribers, agents for the manufacturers, for the delivery of Railway Iron, at any port in the United States, at fixed prices, and of quality tried and approved for many years, on the oldest railways in this country.

RAYMOND & FULLERTON, 45 Cliff st.

Iron.

THE SUBSCRIBERS having resumed the agency of the New-Jersey Iron Company, are prepared to execute orders for the different kinds and sizes of Iron usually made at the works of the company, and offer for sale on advantageous terms.—

150 tons No. 1 Boonton Foundry Pig Iron.
100 " No. 2 do. do. do.
300 " Nos. 2 & 3 Forge do. do.
100 " No. 2 Glendon do. do.
140 " Nos. 2 & 3 Lehigh Crane do do.
100 " No. 1 Pompton Charcoal do.
100 " New-Jersey Blooms
50 " New-Jersey Faggoting Iron, for shafts
Best Bars, ¼ to 4 inch by ¼ to 1 inch thick.
Do do Rounds and Squares, ¼ to 3 inch.
Rounds and Squares, 3-16 to 1 inch.
Half Rounds, ¼ to 1 in. Ovals & Half Ovals ¼ to 1¼ in.
Bands, 1¼ to 4 inch. Hoops, ¼ to 2 inch.
Trunk Hoops, ¼ to 1¼ in. Horse Shoe & Nut Iron.
Nail Plates. Railroad Spikes.

DUDLEY B. FULLER & Co., 139 Greenwich-st. and 85 Broad-st.

WILLIAM JESSOP & SONS' CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly receiving from their manufactory,
PARK WORKS, SHEFFIELD,
Double Refined Cast Steel—square, flat and octagon.
Best warranted Cast Steel—square, flat and octagon.
Best double and single Shear Steel—warranted.
Machinery Steel—round.
Best and 2d gy. Sheet Steel—for saws and other purposes.
German Steel—flat and square, "W. I. & S." "Eagle" and "Goat" stamps.
Genuine "Sykes," L Blister Steel.
Best English Blister Steel, etc., etc., etc.

All of which are offered for sale on the most favorable terms by WM. JESSOP & SONS,
91 John street, New York.

Also by their Agents—
Curtus & Hand, 47 Commerce street, Philadelphia.
Alex'r Fullerton & Co., 119 Milk street, Boston.
Stickney & Beatty, South Charles street, Baltimore.
May 6, 1848.

JOHNSON, CAMMELL & Co's Celebrated Cast Steel,

AND
ENGINEERING AND MACHINE FILES,

which for quality and adaptation to mechanical uses, have been proved superior to any in the United States. Every description of square, octagon, flat and round cast steel, sheet, shovel and railway spring steel, best double and single shear steel, German steel, flat and square, goat stamps, etc. Saw and file steel, and steel to order for any purposes, manufactured at their Cyclops Steel Works Sheffield.

JOHNSON, CAMMELL & CO.,
100 William St., New York.

November 23 1849.

Railroad Iron.

THE Undersigned, Agents for Manufacturers, are prepared to contract for the delivery of English, Welsh and Scotch Rails, of any pattern and weight, also for every description of English, Welsh, Scotch, and Swedish Iron, Railway Chairs and Spikes, Rivets, Bolts, Nuts, Washers, Chain Cables, Anchors, Tin Plates, German Spelter, Iron Castings, and every description of Machinery.

WILLIAM BIRD & CO.,
Iron and Tin Plate Merchants,
44 Wall st., New York.
And at 5 Martin's Lane, City, London, and 140 Buchanan st., Glasgow.

July 27th, 1850.

To the Proprietors of Rolling Mills and Iron Works.

THE Undersigned—Proprietors of Townsend's Furnace and Machine Shop, Albany—are extensively engaged in the manufacture of Machinery and fixtures for Iron, and Copper Rolling Mills, and Iron Works. Having paid particular attention to the manufacture of *Rolls* (Rollers), both *chilled* and *dry-sand*, they feel confident that they can execute orders for such castings in a satisfactory manner. And to give assurance of this, they beg leave to refer to the following named persons, proprietors and managers of some of the most extensive rolling mills in the country, viz: Jno. F. Winslow, J. Tuckerman, H. Burden, W. Burtt, J. & J. Rogers, Saltus & Co., J. B. Bailey, L. G. B. Cannon, Hawkins & Atwater, etc., etc.

F. & T. TOWNSEND.
Albany, August 18, 1849,

Railroad Iron.

B. O. Railway Tires, Railway Wheels,
Scotch Pig Iron, Tin Plates and Banca Tin,
Muntzs Patent Metal Sheathing,
Baltimore Copper.

Contracts for Rails made on behalf of the manufacturers, for delivery at any ports in the United States, at fixed prices.

Bowling Tires and Tire Bars and Scotch Pigs imported to order.

Muntz's Ship-sheathing, and a general stock of Tin Plates and Banca Tin in store, and for sale by

RAYMOND & FULLERTON, 45 Cliff st.

Bowling Iron. Stamped B.O.

Railway Tire Bars	Rivet Iron
Locomotive and other Axles	Locomotive Frame do
Boiler Plates	Bars,

and every other description of this superior Iron.

The subscribers, agents for the sale of Bowling Iron, are prepared to execute orders for importation, especially for railway and machinery uses, with despatch from the manufacturers.

RAYMOND & FULLERTON, 45 Cliff st.

Lovegrove's Patent Cast Iron Water and Gas Pipes.

THE Subscriber, the Inventor and Patentee of the Centrifugal mode of giving form to metallic substances while in a molten state, is preparing to make Cast Iron Water and Gas Pipes, of any dimensions, at prices much lower than they can be made in the old manner, and the pipes warranted to stand a pressure of three hundred pounds to the square inch, and to be soft enough to drill. Steam Engines and all kinds of machinery. Cast Iron Doors and Frames, and Mill Castings of every description, made to order.

THOMAS LOVEGROVE,
Machinist and Founder,
West Falls Avenue, below Pratt st., Baltimore.

Ray's Patent India Rubber Car Springs.

Savannah, Ga., May 22, 1850.

FOWLER M. RAY, Esq.,

Dear Sir: I have no hesitation in saying, after having used on our road your springs and Fuller's, that I consider yours decidedly the best in every particular, and in this opinion I am sustained by all our officers. Fuller's spring has a tendency to split, and also to chafe or abrade by the constant friction on the cast iron plates or disc: and in my opinion is not near so elastic as yours.

Your springs, which have been in use on our road for 12 or 15 months past, and in constant use under both passenger and freight cars, are to all appearances as elastic, sound and good, as when first put in use.

We are now building eigty-five new cars, of which for fifty-sets the springs have been ordered of you.

GEORGE A. ADAMS,
Master Carpenter,
Central Railroad and Banking Co. of Georgia.

—

Connecticut River Railroad Office,
Northampton, May 4, 1850.

E. CRANE, Esq.,

Dear Sir: It is now about two years since I first tried the experiment of using a set of Ray's India-rubber Springs upon one of our merchandise cars, and although the car has been in constant service since that time, I do not on examination find the slightest difference either in the thickness or elasticity of the material.

The same result has followed wherever we have applied them, either for wheel or draw springs on Engines, Tenders or Cars. At present we use no other; either in replacing old springs or building new cars—and I am perfectly satisfied that for economy, durability, safety, and ease of motion, that Ray's India-rubber is the best article for Springs which has been presented to the public.

Yours respectfully, J. HUNT,
Supt. Connecticut River Railroad.

—

EDWARD CRANE, Esq.,

Dear Sir: Having applied to cars of the Boston and Worcester Railroad Corporation, Ray's Vulcanised Rubber Springs (where they have been in use for some two years last past), I have had occasion to observe their operation, and am free to say in answer to your inquiries, that they retain their *elasticity* perfectly during all changes of atmospheric temperature: and are in my opinion a most valuable acquisition to Railroad Cars—are not liable to derangement, as is the case with steel springs; while at the same time it costs less to apply them. Respectfully yours,

D. N. PICKERING,
Supt. Motive Power, Bost. & Wor. Railroad.
Boston, April 15th, 1850.

FARMERS! ATTENTION!!
John Mayher & Co's
NEW AGRICULTURAL WAREHOUSE AND SEED STORE,
197 WATER STREET, NEW YORK.

Where they have for Sale, the largest and most complete assortment of Farming Implements, ever offered for sale in this city—all of which they will sell 10 per cent. Cheaper than the same kind of Goods can be bought at any other house in the city. Our Goods are all Warranted to give satisfaction.

FARMERS wanting to purchase, will please call and examine our *Stock* before buying elsewhere.

Among our assortment may be found the Celebrated Highest Premium Eagle Ploughs! together with all the most approved Ploughs now in use.

Also,—Horse Powers, Threshing Machines, Fan Mills, Corn Shellers, Straw Cutters, Corn Mills, Seed Sowers, Churns, Ox Yokes, Ox Scrapers, Hay Rakes, Horse Rakes, Patent Chain Pump (that never freezes nor rusts), and other Pumps; in fact we have everything for Farming Purposes—together with Guano, Bone Dust and other Fertilizers.

JOHN MAYHER & CO.,
197 Water st., N. Y.

February 9, 1850.

N.B.—J. M. & Co. also continue their Old Stand, at 195 Front street, near Fulton Market.

RAILROAD CAR AND COACH TRIMMINGS.
Doremus & Nixon,
IMPORTERS AND FURNISHERS
HAVE FOR SALE

Plain Garnet Plush.	Fig. Garnet Plush (Butterfly pat.
" Crimson "	" Crimson " (Elegant.
" Scarlet "	" " " (Gen. Taylor.

BROCATELLES.

Crimson Silk Brocatelles. Gold and Maroon do.
Gold and Blue " " Brown "
Silk and Wool " of every color.

MOQUETTS,

Of elegant designs and colors.

GERMAN CLOTH FOR CAR LININGS.

The most beautiful goods ever shown in this country, and the subscribers are the sole agents for the sale of them.

Oil cloths Enamelled with Gold. } These goods can be
" " " Silver. } furnished in any
Do. Silver ground velvet printed. } dimensions req'd.

CURLED HAIR

Of every description and quality.

JNO. W. A. STRICKLAND, Agent.
New York, 1850. 1y16

FOWLER M. RAY'S
Patent India-rubber Railroad CAR SPRING.

New York and Erie Railroad Shops.
Piermont, March 26, 1850.

This will certify that from practical experience in the use of Fowler M. Ray's India rubber Car Springs, I believe them to be far superior to any others now in use.

I have never known them to be affected by any change of temperature, as other Rubber Springs have been affected on this road.

I am at the present time repairing a Passenger Car that Mr. Ray and myself mounted with his springs about two years and eight months since.

The springs are at the present time as perfect, to all appearances, as when first applied to the car.

Respectfully yours,
HORACE B. GARDNER,
Foreman of the Car Shops.

—

Supt. Office N.Y. & H. R.R.,
New York, March 8, 1850.

This is to certify that we have used the Rubber Springs manufactured by Mr. F. M. Ray for the past twenty months, "both for Passenger and Freight Car Springs and Bumpers, and of different sizes," and have in every case given entire satisfaction, and I consider them the best spring now in use.

M. SLOAT, Supt.

—

Boston, March 5, 1850.

In answer to your enquiry about India-rubber Springs, I have to say that we have used them to a considerable extent on both freight and passenger cars, and also on several of our tenders; and I am very well satisfied that they answer all the purposes for which they are intended. I believe the India-rubber will soon supersede all other springs for cars and tenders.

Yours truly, S. M. FELTON,
Supt. Fitchburg Railroad.

Office New Jersey Railroad Co.,
Jersey City, March 8, 1850.

FOWLER M. RAY, Esq.,

Dear Sir: In answer to your enquiries respecting the operation of the Vulcanised Rubber Springs, purchased by our company from you some two years since, I reply that they are superior to any spring in use, (that I have either seen or heard of).

The improved form of your spring, consisting of a solid piece of vulcanised rubber with bands on the outside, is far superior to your first form, consisting of disks of rubber with metallic plates interposed.

The last named form was tried, if you recollect, at a much earlier period; and then was replaced by your last form.

I have no hesitation in saying that your springs have given entire satisfaction, and most cheerfully recommend them to railroad companies throughout the country for the following reasons:

1st. The cost is 30 per cent. less.

2d. Saving of weight on each car of 8 wheels from 700 to 800 lbs.

3d. Less care and attention is required, as they are not liable to get out of repair.

4th. A great saving is secured in the wear and tear of the cars and rails from their great elasticity.

5th. The freedom from noise.

6th. There is greater safety in case of accident, as they cannot be broken.

7th. The comfort of passengers is enhanced sufficiently to pay the expense, waiving all the other reasons that I have given.

Should this fail to satisfy any person enquiring, you are at liberty to refer to me, No. 150 Washington St., Jersey City. Yours respectfully,

T. L. SMITH, Supt.

—

New York, March 11, 1850.

I have used the Patent India-rubber Spring purchased of Mr. Ray, upon the cars of the New York and New Haven Railroad, and have found them efficient and economical; and when applied to the axles and draw springs, believe them to be quite equal to any in use. I have found a combination of these springs with a steel spring under the transom beam a very satisfactory arrangement, and am now using this plan in all new cars. Yours respectfully,

ROBERT SCHUYLER.

—

February 25, 1850.

From practical observation of the use of the India-rubber Car Springs, manufactured and sold by your company, we are entirely satisfied in their application, and do not hesitate to recommend them as elastic, durable, requiring no repairs for years, and retaining their consistency during all extremes of weather. We have applied them for the past two years, and consider them superior for all railroad purposes.

Yours truly,
OSGOOD BRADLEY, Car Builder, Worcester.
T. & C. WASON, do. Springfield.
DEAN, PACKARD & MILLS, do. do.
DAVENPORT & BRIDGES, do. Cambridgeport.

—

Office of the New Jersey Railroad Co.,
Jersey City, March 7, 1850.

This is to certify that we have had Mr. F. M. Ray's India-rubber Springs in constant use under our cars, and as Bumper Springs for upwards of two years, and they have in every way given perfect satisfaction.

The present form of spring we deem far superior to the form of Disk, having used both forms, although we have none of those made in Disks at present in use.

We take pleasure in recommending these springs to all railroad companies.

J. P. JACKSON, Vice Prest.
New Jersey Railroad and Trans. Co.

—

Roxbury, February 28, 1850.

In compliance with your request, I take great pleasure in stating the result of my experience in the use of "Ray's Patented Vulcanised India-rubber Car and Engine Springs." We have used them nearly two years, and never had one fail in any way. The *cold weather* does not affect *them*, as it has *other* rubber springs we have used.

With sixteen years' experience as superintendent of machinery on the Boston and Providence railroad, I take pleasure in saying that your springs are the best we ever used, or I ever saw used elsewhere. We have 20 cars rigged with them, of which I can say that the springs are as good now as when first applied. I put 24 lbs. of the rubber under the forward end of one of our heaviest engines, taking off 250 lbs. of steel springs—it has been in use 18 months, and is in as good condition now as when first put under the engine.

Very respectfully yours,
GEO. S. GRIGGS,
Supt. of Machinery, Boston and Prov. R.R.

Fall River, February 2, 1850.

In answer to yours of the 20th ult. I would say that this company has for some 10 or 12 months past been using "Ray's India-rubber Springs." We have applied them to both passenger and freight cars with uniform success. They have invariably preserved their elasticity and consistency through all the extremes of weather; and we are now applying them whenever the steel spring fails. I am well satisfied that they are particularly adapted for railroad purposes.

Very respectfully yours,
GEO. HAVEN,
Supt. Fall River Railroad.

—

Jersey City, March 9, 1850.

This is to certify that the present form of Mr. F. M. Ray's India-rubber Car Spring I consider far superior to the form of Disk, having used both forms.

I take pleasure in recommending these springs to all railroad companies. DAVID H. BAKER,
Foreman of Car Shop of N.J. R.R. & Trans. Co.

—

Harlem R.R. Depot,
New York, March 7, 1850.

This is to certify that we have used Mr. F. M. Ray's India-rubber Springs for over eighteen months, and find them to be easy and durable, and recommend them to railroad companies as being superior to anything we have tried. J. M. SMART,
Foreman at 42d St. Depot.

—

Old Colony Railroad Office,
Boston, March 6, 1850.

EDWARD CRANE, Esq.,
President New England Car Co.,

Dear Sir: In compliance with your request I would state that the Old Colony Railroad Comp'y have had in use upon their road, India-rubber Springs furnished by your company, for more than eighteen months past, during which time they have been extensively used under Passenger and Freight Cars, Locomotive Tenders, and for Drawer and Buffiing Springs, with the most perfect success. The elasticity and consistency of the Rubber has never been unfavorably affected by either extremes of heat or cold—and from the experience which we have had in the use of Rubber Springs, I think them well adapted for railroad purposes—and therefore we have for some months past used Rubber almost exclusively, in all places where springs are required.

Respectfully yours, etc.,
JAS. H. MOORE,
Supt. O. C. Road.

—

Troy, February 27, 1850.

We have been using your India-rubber Car Springs for nearly two years—and we take pleasure in saying that in our opinion the rubber has to a certain extent already, and may eventually entirely supersede all other Springs for Railroad Car purposes. We now use it entirely for Draw Springs and Bumpers, considering it better and lighter than steel.

During our two years' experience in the use of it, we have not known any to lose their elasticity, or fail in any way; and we cheerfully recommend the rubber for railroad car springs. Very respectfully,

EATON, GILBERT & CO.

Passenger Car Linings.

THE Advertiser continues to make to order the Enamelled Car Linings which have been so highly approved the last three years, and are now exclusively used by all the Northern Railroads. No pains are spared to get out new styles, and adapt them to the tastes of every consumer.

Orders addressed to CHARLES STODDER, No. 75 Kilby street, Boston, will have prompt attention.

March 23, 1850. 2m

India-rubber for Railroad Cos.

RUBBER SPRINGS—*Bearing and Buffer—Fuller's Patent—Hose* from 1 to 12 inches diameter. Suction Hose. *Steam Packing*—from 1-16 to 2 in. thick. *Rubber and Gutta Percha Bands.* These articles are all warranted to give satisfaction, made under Tyer & Helm's patent, issued January, 1849.—No lead used in the composition. Will stand much higher heat than that called "Goodyear's," and is in all respects better than any in use. Proprietors of railroads do not be overcharged by pretenders.

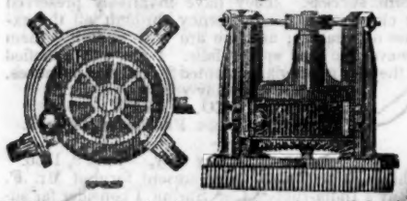
HORACE H. DAY,
Warehouse 23 Courtlandt street.
New York, May 21, 1849.

Spikes, Spikes, Spikes.

ANY person wishing a simple and effective Spike Machine, or a number of them, may be supplied by addressing J. W. FLACK,
March 6, 1850. Troy, N. Y.

MACHINERY.

Henry Burden's Patent Revolving Shingling Machine.



THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phœnixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has give universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous: considerable saving in first cost; saving in power; the entire saving of shingler's, or hammersman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll sounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y. P. A. BURDEN.

Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery *for making Spikes*, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

P. A. BURDEN, *Agent*,
Troy Iron and Nail Factory, Troy, N. Y.

CHILLED RAILROAD WHEELS.—THE UNdersigned are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,
Willow St., below 13th,
Philadelphia, Pa.

Brown's Old Established SCALE WARE HOUSE,

NO. 234 WATER ST., NEW YORK.

THE Subscriber, Practical Manufacturer of Scales of every description, respectfully asks the attention of Railroad Companies to his Improved Wrought Iron Railroad Track and Depot Scales which for strength, durability, accuracy, convenience in weighing, and beauty of workmanship, are not surpassed by any others in this country.

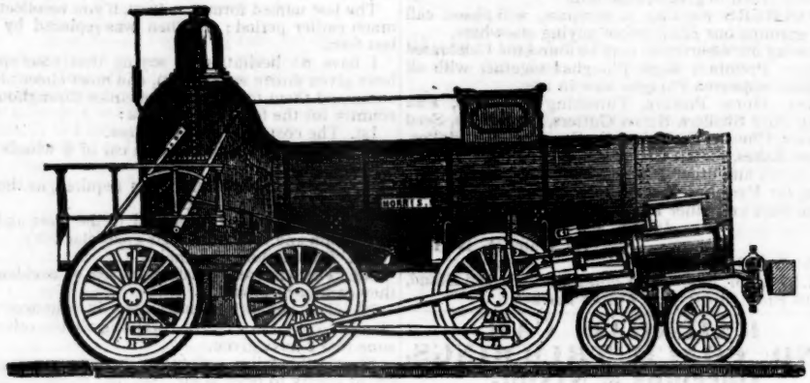
He is aware that this is rather a bold assertion for him to make, yet he can say with confidence that they have but to be tried to give them precedence over all others. J. L. BROWN.

☞ Bank Scales made to order, and all Scales of his make Warranted in every particular.

References given if required

NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,



THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size. Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tires are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS, BROTHERS

PATENT MACHINE MADE HORSE-SHOES.

THE Troy Iron and Nail Factory have always on hand a general asssortment of Horse Shoes, made from Refined American Iron.

Four sizes being made, it will be well for those ordering to remember that the size of the shoe increases as the numbers—No. 1 being the smallest. P. A. BURDEN, *Agent*,
Troy Iron and Nail Factory, Troy, N. Y.

Etna Safety Fuse.

THIS superior article for igniting the charge in wet or dry blasting, made with DUPONT'S best powder, is kept for sale at the office and depot of

REYNOLDS & BROTHER,
☞ *Sole Manufacturers*, ☜
No. 85 Liberty St.
NEW YORK.

And in the principal cities and towns in the U. States.

☞ The Premium of the AMERICAN INSTITUTE was awarded to the *Etna Safety Fuse* at the late Fair held in this city.

November 3, 1849. 1y

COLUMBUS, OHIO,

Railroad Car Manufactory. RIDGWAYS & KIMBALL,

HAVE established at this central point, the manufacture of Passenger, Freight, Gravel and Hand Cars for Railroads, and assure all Western Railroad Companies that it will be their constant aim to procure the best materials and workmen, and to turn out the best kind of work at fair prices. Specimens may be seen on the Columbus and Xenia Railroad. The patronage of Railroad Companies is respectfully solicited. 1y8

To Inventors and Patentees.

OWEN G WARREN, ARCHITECT, Has had many years' experience as Agent for obtaining Patents, both in this country and Europe, and will transact such business promptly and reasonably. Persons at a distance can have their business done by correspondence—without the necessity of visiting this city or Washington. Office No. 94 Merchants Exchange, Wall st., corner of Hanover st., up stairs. 1y3

MR. HALE:—"The New England Car Co., having been engaged for the last six months in introducing the Vulcanized India-rubber Car Spaings upon the different railroads in this and other states, and having in particular introduced it upon the Boston and Worcester railroad with perfect success, were much gratified to find, by your paper of this morning, that the article had given satisfaction to the president of that corporation, and the terms of just commendation in which you were pleased to speak of it. But their gratification was scarcely equalled by their surprise, when, or arriving at the close of your paragraph, they found the results of all their labors attributed to a foreign source, with which the New England Car Co. has no connection. The material used on the Boston and Worcester railroad, and all the other railroads in this country, where any preparation of India-rubber has been successfully applied, is entirely an American invention, patented in the year 1844 to Charles Goodyear, of New Haven, Conn., and the application of it to this purpose and the form in which it is applied are the invention of F. M. Ray of New York. The only material now in use, and so far as has yet appeared, the only preparation of India rubber capable of answering the purpose, has been furnished under these patents by the New England Car Company, manufactured under the immediate inspection of their own agent. If any other should be produced, the right to use it would depend upon the question of its interference with Mr. Goodyear's patent. The New England Car Company have their place of business in this city at No. 99 State street, and are prepared to answer all orders for the Vulcanised India rubber Car Springs, of the same quality and of the same manufacture as those which they have already placed on your road, and most fo the other roads terminating in this city."

And yet Mr. Knevitt is using these experiments made upon the Springs of the Car Company to induce the public to purchase his springs, and is attempting to impose upon them the belief that the springs used were furnished by him! We ask whether such a course is honorable, or entitles his statements to much consideration from the public.

The above Springs are for sale 98 Broadway, New York, and 99 State street, Boston.

EDWARD CRANE Agent, Boston.
F. M. RAY, Agent, New York.

Boston, May 8, 1849.

STABILITY—SECURITY—PERPETUITY.

Mutual Life Insurance Co. of New York.

No. 35 WALL STREET.

A MILLION OF DOLLARS

Securely invested in Bonds and Mortgages on real estate in this city and Brooklyn, and stocks of the State and City of New York and United States Government.

The company declared a dividend of profits of fifty-two per cent. on all existing policies on the 31st of January, 1848.

All the Profits are Divided Among the Insured.

Persons may effect insurance on their own lives and the lives of others.

A married woman can insure the life of her husband, the benefits of which are secured by law for the exclusive use of herself or children.

Clergymen and all others dependent upon salaries or their daily earnings are specially invited to avail themselves of a resource whereby their surviving families may be secured from the evils of penury.

Pamphlets explanatory of the principles of Mutual Life Insurance, and illustrating its advantages, with forms of application, may be obtained at the office of the company, 35 Wall street, or of any of its agents.

TRUSTEES.

Jos. B. Collins,	Abraham Bininger,
Wm. J. Hyslop.	Alfred Edwards,
R. H. McCurdy,	Wm. Betts,
Fred. S. Winston,	Joseph Blunt,
C. W. Faber,	Isaac G. Pearson,
John P. Yelverton,	Henry Wells,
Theo. Sedgwick,	Wm. Moore,
Stacy B. Collins,	George R. Clark,
John H. Swift,	Jona. Miller,
John Wadsworth,	David A. Comstock,
S. M. Cornell,	Robert Schuyler,
Gouv. M. Wilkins,	James Chambers,
John V. L. Pruyn,	Joseph Tuckerman,
Jas. S. Wadsworth,	Moses H. Grinnell,
Charles Ely,	Wm. J. Banker,
John C. Cruger,	John M. Stuart,
Charles King,	Francis S. Lathrop,
Alfred Pell,	Nathaniel Hayden.

JOSEPH. B. COLLINS, President.
ISAAC ABBATT, Secretary. 3m9

Hydraulic Cement.

KINGSTON LIME AND CEMENT CO. OFFICE 271 PEARL-ST. N. Y.

HYDRAULIC CEMENT, OF BEST QUALITY, manufactured at their works, for sale in lots to suit purchasers.

Also, Ground Lime, a superior article for Builders.

ISAAC FRYER, Sec'y.

January 19, 1850. 1y

Engine and Car Works, PORTLAND, MAINE.

THE PORTLAND COMPANY, Incorporated August 8th, 1846, with a capital of $250,000, have erected their extensive Works upon the deep water of Portland Harbor, and receive and transport, to and from their works direct, to and from vessels of any class.

They now manufacture to order, and deliver upon the Railroads running in each direction from the city, or on shipboard as wanted, Locomotive, Stationary, or Steam Boat Engines; Passenger, Mail, Freight, Earth and Hand Cars; Railway Frogs, Switches, Chairs and Castings; and every other description of Machinery.

HORACE FELTON, Superintendent.

JAMES C. CHURCHILL, General Agent and Clerk.

RAILROADS.

EASTERN RAILROAD.

SUMMER ARRANGEMENT.

On and after Monday, June 17th, 1850, trains will leave Boston daily (Sundays excepted);

For Lynn, 7, 9½, 11 a.m., 12 m., 2½, 4½, 5, 6, 7 p.m.
Salem, 7, 9½, 11, a.m., 12 m., 2½, 3, 4½, 6, 7 pm.
Manchester and Gloucester, 9½ a.m., 3, 6 p.m.
Marblehead, 7, 9½, 12 a.m. 2½, 4½, 6, 7 p.m.
Ipswich, 7, 11, 12 a.m., 2½, 4½, 7 p.m.
Newburyport, 7, 11, 12 a.m., 2½ 4½, 7 p.m.
Portsmouth, 7, 11 am., 4½, pm.
Portland, Me., 7, 11 am., 4½, pm.

And for Boston,

From Portland, 5, 10¼ am., 5 pm.
Portsmouth, 7½,* am., 1, 7½*, pm.
Newburyport, 6½, 8*, 11½ am., 1½*, 5, 8 pm.
Ipswich, 7·40, 8·35, 11·42 a.m. 2·20, 5·22, 8½.
Gloucester, 7½, am., 1½, 8 pm.
Manchester, 7 am., 2 pm.,
Salem, 6½, 7½*, 8½*, 9½, 10½ am., 12½*, 2½* 3,* 6*, 9*, pm.
Lynn, 6½, 7½*, 8½*, 9½, 10½ am:, 12½*, 2½*, 3½ 6½*, 9½* pm.

**Or on their arrival from the East.*

Freight trains each way daily. Office 17 Merchants' Row, Boston.

JOHN KINSMAN, Superintendent.

ALBANY AND BUFFALO RAILROADS.—Four Trains daily, Sundays excepted, viz: Leave Albany, 6 a.m., 9 a.m., 2 p.m., 7 p.m. Reach Buffalo, 15 hours, 18 hours, 23 hours, 18 hours. Arrive from Buffalo, 7 p.m., 2½ a.m., 12½ m., 3½ p.m.

Passengers by the *Express Train* reach Buffalo from New York, and New York from Buffalo, in 24 hours. The Isaac Newton and Oregon connect at Albany with this Train. Baggage cars, with careful baggage masters, run through with all the trains.

For Schenectady, Saratoga Springs & Whitehall,

Leave Albany at 7 a.m. and 2 p.m. For Schenectady only at 6, 7 and 9 a.m. and 12½, 2 and 7 p.m. For Erie Canal packets at 7 a.m. and 7 p.m. By Plank Road from Schenectady to Saratoga at all hours by stages, etc.

The *Eastern Trains* leave Albany at 7 a.m. and 3 p.m. The wagons of the company take baggage *free* between railroads and steamboats at Albany.

E. FOSTER, Jr., Sec'y
Albany and Schenectady Railroad Co.
Albany, August, 1849.

BOSTON AND MAINE RAILROAD.

Summer Arrangement, 1850.

Outward Trains from Boston

For Portland at 7, 11, am. and 4½ pm.
For Great Falls at 7, 11, am., 4½ pm.
For Haverhill at 7, 9, 11 am., 2½, 4½, 6½, pm.
For Lawrence (South Side,) 7, 11 am., 2½, 4½, pm.
" (North ") 7½, 9, a.m. 12m., 5, 6½, p.m.
For Reading 7, 9, 11 am. 12m. 2½, 4½, 5, 6½, 7½, 9½ pm.
The Station in Boston is on Haymarket Square.

THOS. S. WILLIAMS, Sup'r.

July 1, 1850.

NEW YORK AND HARLEM RAILROAD.

NEW ARRANGEMENT.

On and after Wednesday, October 17th, 1849, the Cars will run as follows, (Sundays excepted) until further notice:

Trains will leave the City Hall, New York, for—

Harlem and Morrisania at 6½, 8, 10, 11, 12 am., 2, 3½, 4, 5, 6½ pm.
New Village, at 8½, 10, 12 am., 3½, 5, 6½ pm.
Fordham and Williams' Bridge, at 8½, 10, 12 am., 2½ 3½, 5, 6½ pm.
Hunt's Bridge, Underhill's and Hart's Corners, at 8½, 10 am., 3½, 5 pm.
Tuckahoe and White Plains, at 8½, 10 am., 2½, 3½, 5 pm.
Pleasantville, New Castle, Bedford, Mechanicsville, Purdy's, Croton Falls, and intermediate stations, on signal, 8½ am., 2½, 3½ pm.
Brewster's, Towner's, Patterson, Paulding's, South Dover, Dover Furnace, and Dover Plains, 8½ am., 2½ pm.

NOTICE—Passengers are reminded of the great danger of standing upon the platform of the cars, and hereby notified that the practice is contrary to the rules of the Company, and that they do not admit any responsibility for injury sustained by any passenger upon the platforms, in case of accident.

Returning to New York will leave

Harlem and Morrisiana at 6 08, 7½, 8 37, 9, 10 6, 12 am., 1 43, 3 07, 3½, 5, 5 47 pm.
New Village, at 5 58, 8 27, 9 56 am., 1 33, 2 57, 5 36 pm.
Fordham and William's Bridge at 5½, 8 14, 9 43, 10 57 am., 1 20, 2 44, 5 24 pm.
Hunt's Bridge at 8 04, 9 33 am., 2 34, 5 16 pm. On signal.
Underhill's, at 7 56, 9 23 a.m., 2 26, 5 10 p.m. On signal.
Tuckahoe at 7 53, 9 18, 10 40 am., 2 23, 5 08 pm.
Hart's Corners at 7 38, 9 03 am., 2 08, 4 54 pm.—On signal.
White Plains at 7½, 8 55, 10 20 am., 2, 4 47 pm.
Davis' Brook at 8 40, 10 11 am., On signal. 4 39 pm. On signal.
Unionville, 8 27, 10 11 am. On signal. 4 29 pm.—On signal.
Pleasantville at 8 20, 9 56 am., 4 24 pm.
Champaqua, at 8 10, 9 50 am. On signal. 4 18 pm. On signal,
New Castle, at 7 56, 9 38 am.. 4 07 pm.
Bedford at 7 46, 9 32 am., 4 02 pm.
Mechanicsville at 7 36, 9 22 am., 3 52 pm.
Golden's Bridge, 7 28, 9 17 am. On signal, 3 47 p m. On signal.
Purdy's at 7 20, 9 09 am., 3 39 pm.
Croton Falls, at 7½, 9 04 am.,3 34 pm.
Brewster's, at 8 50 am., 3 20 pm.
Towner's, at 8 35 am., 3 05 pm.
Paterson, at 8 27 am., 2 57 pm.
Paulding's, at 8 17 am., 2 47 pm.
South Dover, 8 02 am., 2 32 pm.
Dover Furnace, 7 55 am., 2 25 pm.
Dover Plains, at 7 45 am., 2 15 pm.

The trains for Harlem and Morrisiana leaving City Hall at 6½, 8, 10, 11, 12, 2, 4 and 6½, returning from Morrisiana and Harlem at 6 08, 7½, 9, 12, 1 43, 3 07, 3½ and 5 o'clock, will land and receive passengers at 27th 42d, 51st, 61st, 79th, 86th, 109th, 115th, 125th and 132d streets.

The Dover Plains train from New York at 2½ pm., returning leaving Dover Plains at 7½ am., will not stop between White Plains and New York, (except at Tuckahoe, Williams' Bridge and Fordham,) unless to leave passengers coming from above Croton Falls.

A car will precede each train ten minutes to take up passengers in the city. The last car will not stop, except at Broome st. and 27th street.

Freight Trains leave New York at 1 o'clock pm.—Returning, leaves Dover Plains at 12 o'clock m.

For Sunday Aarrangements, see hand bills.

M. SLOAT, Sup't.

NEW YORK & ERIE RAILROAD.

Summer Arrangement, 1850.

Steamboats leave daily, Sundays excepted, from the pier foot Duane st., at 6½ a.m., and 6½ p.m., for Piermont; there connecting with the new and comfortable broad gauge cars of this road, running to Jefferson at the head of Seneca Lake in 12 hours, where passengers take the new and splendid steamer Benj. Loder for for Geneva. At Geneva they take any o the trains of the central line for Rochester, Buffalo, and the west.

Breakfast and supper on board the steamboats at each end.

Express freight trains daily over the whole road in 24 hours.

FARES.

Between New York and Buffalo,		$9 85
"	" Geneva,	6 00
"	" (second class,	4 50

CHAS. MINOT, Supt.

August 1st, 1850.

NORTHERN RAILROAD, *NEW YORK.*

CARS run between Rouses Point and Chateaugay daily, Sundays excepted, as follows:

Leave Rouses Point at . . 3½ A.M.
Leave Chateaugay at . . 6½ P.M.

On the arrival of the cars at Chataugay, stages are in readiness to take the passengers to Ogdensburg, where they arrive the same day.

Passengers leave Ogdensburg in the morning by stage, and take the evening train from Chataugay to Rouses Point, where they go immediately on board the steamboats which run north and south on Lake Champlain.

Passengers leaving New York in the evening by the way of Whitehall, will arrive at Rouses Point the next night, and the next morning pass directly from the boat to the cars, and arrive at Ogdensburg the same day.

CHARLES L. SCHLATTER, Supt.

WESTERN AND ATLANTIC RAILROAD,

FROM ATLANTA, GA., TO CHATTANOOGA, TENN. 140 Miles.

PASSENGER SCHEDULE.

Leave Chattanooga daily, Sundays excepted, at 8½ a.m.
Arrive at Kingston . . . by 12 m.
" Dalton . . . by 3 p.m.
" Chattanooga . . . by 6 "
Leave Chattanooga daily, Sundays excepted, at 7 a.m.
Arrive at Dalton . . . by 9½ "
" Kingston . . . by 12 m.
" Atlanta . . . by 4 p.m.

The fare is now permanently reduced to *three* cents per mile for way as well as through Passengers; children and servants *two* cents per mile.

There are two Railroad routes from Atlanta to the Seaboard, viz: one by the Georgia Railroad to Augusta, and thence to Charleston by the South Carolina Railroad; the other by the Macon and Western Railroad to Macon, and thence to Savannah by the Central Railroad.

At Kingston, 60 miles north of Atlanta, the Rome Railroad branches off to Rome on the Coosa river, which admits of steamboat navigation as far down as Greensport in Ala. Mail stages are in operation from Rome leading towards Tuscaloosa, Ala., Columbus, Miss., Memphis, Tenn., etc.

At Dalton, 100 miles north of Atlanta, a line of stages branches off to Knoxville, Tenn., which will be superseded by the East Tennessee and Georgia Railroad as rapidly as the same is completed.

At Chattanooga a number of steamboats are in successful operation on the Tennessee river, and from that terminus of the road stages run to Nashville, which will be superseded by the Nashville and Chattanooga Railroad as rapidly as the same is completed.

WM. D. FULLTON, Supt. Transp.
Transportation W. & A. R. R.,
Atlanta, March, 1850.

GREAT NORTHERN & SOUTHERN MAIL ROUTE.

From New York to Charleston, S. C. daily, via *Philadelphia, Baltimore, Washington City, Richmond, Petersburg, Weldon and Wilmington, N. C.*

Travellers by this route, leaving New York at 4½ p. m., Philadelphia at 10 p.m., and Baltimore at 6 a.m., proceed without delay at any point on the route, arriving at Richmond, Va., in a day, and at Charleston, S. C., in two and half days from New York.

Through tickets from New York to Charleston, $20 00
" " Baltimore to Richmond, 7 00
" " " " Petersburg, 7 50

For tickets to Richmond and Petersburg, or further information, apply at the *Southern Ticket Office, adjoining the Washington Railroad Ticket Office, Pratt Street, Baltimore.*

STOCKTON & FALLS.

LITTLE MIAMI RAILROAD.—SUMMER ARRANGEMENT.

Cincinnati and Sandusky.

FIRST Passenger Train leaves Depot on East Front street, at 5 o'clock 10 minutes A. M. stops for breakfast at Morrow, and arrives at Springfield at 11 10 A M. Leaves Springfield for Sandusky at 11 50 A. M.

Second Passenger Train leaves Depot 3 P. M. arrives at Springfield at 9 P.M. Passengers take tea at Springfield, and leaves for Sandusky at 9½ P. M.

RETURNING—First Train leaves Springfield at 4 A. M. Stop for breakfast at Xenia, and arrives at Cincinnati at 10 15 A. M.

Second Train leaves Springfield at 2½ P. M. Stop for tea at Morrow, and arrives at cincinnati, at 8½ P. M.

Passengers taking the Morning Train arrive at Sandusky at 9 P. M. Those taking the Afternoon Train arrive at 7½ A. M. next morning, and proceed directly on in the boats.

Passengers for columbus, Zanesville, Wheeling, and intermediate towns, should take the 5, 10 A. M., Train.

The Ohi Stage Company are running the following Lines in connection with the Trains:

A Daily Daylight Line to Columbus from Springfield in connection with the Morning Train from Cincinnati. Also, Daily Lines to Columbus, from Xenia and Springfield, connecting with the 3 o'clock pm. train from Cincinnati.

Fare from Cincinnati to Xenia . .		$1 90
" "	Springfield . .	2 50
" "	Sandusky city .	6 50
" "	Buffalo . .	10 00
" "	Columbus . .	4 50

For other information and through tickets, apply at the Ticket Office on Broadway, near Front-st., Cincinnati.

W. H. CLEMENT, Superintendent.

☞ The Company will not be responsible for Baggage exceeding 50 dollars in value, unless the same is returned to the Conductors or Agent, and freight paid at the rate of a passage for every 500 dollars in value above that amount.

PHILADELPHIA, WILMINGTON, & BALTIMORE RAILROAD.

Summer Arrangement.
April 1st, 1849.—Fare $3.

Leave Philadelphia 8½ am., and 10 pm.
Leave Baltimore 9 am, and 8 pm.
Sunday—Leave Philadelphia at 10 pm.
" Baltimore at 8 pm.

Trains stop at way stations.

Charleston, S. C.

Through tickets Philadelphia to Charleston, $20.

Pittsburg and Wheeling.

Through ticket, Philadelphia to Pittsburg, $12.
" " Wheeling, 13.
Through tickets sold at Philadelphia office only.

Wilmington Accommodation.

Leave Philadelphia at 12 m. 4 and 7 pm.
Leave Wilmington at 7½ am., 4½ and 7 pm.

Newcastle Line.

Leave Philadelphia at 2½ pm.—Baltimore at 1½ pm
Fare $3.—Second class, $2.

N.B.—Extra baggage charged for.

I. R TRIMBLE, Gen. Supt.

BALTIMORE AND SUSQUEHANNA RAILROAD.—Reduction of Fare.

Morning and Afternoon Trains between Baltimore and York.—The Passenger Trains run daily, except Sundays, as follows:

Leave Baltimore at - - - -	9 am. and 3½ pm.
Arrive at - - - - -	9 am. and 6½ pm.
Leave York at - - - -	5 am. and 3 pm.
Arrive at - - - - -	12½ pm. & 8 pm.
Leave York for Columbia at	- 1½ pm. & 8 am.
Leave Columbia for York at	- 8 am. & 2 pm.

Fare:

Fare to York - - - - -	$1 50
" Wrightsville - - - -	2 00
" Columbia - - - -	2 12½

Way points in proportion.

PITTSBURG, GETTYSBURG, AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg - - - - - - $9
Or via Lancaster by railroad - - - - 10
Through tickets to Harrisburg or Gettysburg - 3
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at - - 5½ pm.
Returning, leaves Owing's Mills at - - 7 am.

D. C. H. BORDLEY, Sup't.
31 1y Ticket Office, 63 North st.

PHILADELPHIA & READING RAILROAD

Passenger Train Arrangement for 1850.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock a.m.

The Train from Philadelphia arrives at Reading at 12 18 m.

The Train from Pottsville arrives at Reading at 10 43 a.m.

Fares.	Miles.	No.1.	No.2.
Between Philad. and Pottsville,	92	$3·50	and $3·00
" " Reading,	58	2·25	1·90
" Pottsville "	34	1·40	1·20

Five minutes allowed at Reading, and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8tf.

BALTIMORE AND OHIO RAILROAD AND WASHINGTON BRANCH.

On and after January 1, 1850, Passenger Trains will run as follows:

Leave Baltimore for Ellicott's Mills, Frederick, Harper's Ferry, Martinsburg, Hancock and Cumberland, every morning at 7½ o'clock. This line carries the Great Mail, and connects with Post Coaches at Cumberland, for Wheeling and Pittsburg, over the National Road. Also with the Winchester Trains, at Harper's Ferry. N.B.—Passengers for Pittsburg take the steamers of the Monongahela slack water navigation at *Brownsville*, only 76 miles from Cumberland.

Leave Baltimore for Ellicott's Mills, Frederick and Harper's Ferry, daily, except Sunday, at 4½ p.m.

Leave Baltimore for Washington City, daily, at 6 a.m. and 5 p.m.—daily, except Sunday, at 9 a.m. The early train connects with the Great Southern Line, via Fredericksburg and Richmond, to Charleston.

Leave Cumberland for Baltimore, etc., at 8½ a. m., daily, connecting with the train from Winchester at Harper's Ferry—with the Evening Train to Washington City, at the Relay House—and with the Evening Train to Philadelphia, at Baltimore. Time for arriving at Baltimore, 5½ p.m.

Leave Harper's Ferry for Baltimore, daily, except Sunday, at 7½ a. m—taking in Passengers who leave Frederick at 8½ a.m.

Leave Washington for Baltimore, daily, at 6 a.m. & 5½ p.m., and *daily, except Sunday*, at 9½ a. m. The early train connects at the Relay House with the morning line to Cumberland and the West, and at Baltimore with the day line to Philadelphia and New York.

Through tickets are sold at *Philadelphia and Baltimore* for Pittsburgh and Wheeling, and at *Philadelphia and New York* for Charleston, S. C., at the following

RATES OF FARE.

	To Pittsburg.		Wheeling.		Charleston.
	In winter.	Summer.	Win.	Sum.	
From Philadelphia,	$13	$12	$14	$13	$20
" Baltimore,	11	10	12	11	
" New York, ...					20

Passengers leaving New York not later than the afternoon line via Newark, etc., reach Baltimore in season to take the next morning's lines to the South and West.

Passengers leaving Cumberland in the morning and Washington in the evening lines, reach Baltimore in season to proceed to Philadelphia by the evening train at 8 p. m.—so as to reach New York before noon the next day.

An Emigrant line by burthen cars, leaves Baltimore every morning, except Sundays, at 4 o'clock—connecting with a line of the previous day from N. York—and at Cumberland with a wagon line to Pittsburg or Brownsville and Wheeling. Fare by this line:

From New York to Pittsburg,		$8 00
" Philadelphia	"	6 50
" Baltimore	"	5 00

By order, J. T. ENGLAND, Agent.

SOUTH CAROLINA RAILROAD.—A PASSENGER Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily - - - - - - - $26 50
Fare through from Charleston to Huntsville, Decatur and Tuscumbia - - - - 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic Railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr., Agent.

FAIRBANKS' RAILROAD SCALES.—THE subscribers are prepared to construct at short notice, *Railroad* and *Depot Scales*, of any desired length and capacity. Their long experience as manufacturers—their improvements in the construction of the various modifications, having reference to strength, durability, retention of adjustment, accuracy of weight and dispatch in weighing—and the long and severe tests to which their scales have been subjected—combine to ensure for these scales the universal confidence of the public.

No other scales are so extensively used upon railroads, either in the United States or Great Britain;—and the managers refer with confidence to the following in the United States.

Eastern Railroad.	Boston & Maine Railroad.
Providence Railroad.	Providence and Wor. Road.
Western Railroad.	Concord Railroad.
Old Colony Railroad.	Fitchburg Railroad.
Schenectady Railroad.	Syracuse and Utica Road.
Balt. and Ohio Railroad.	Baltimore and Susq. Road.
Phila. & Reading Road.	Schuylkill Valley Road.
Central (Ga.) Railroad.	Macon and Western Road.

New York and Erie Railroad.

And other principal Railroads in the Western, Middle and Southern States.

E. & T. FAIRBANKS & CO.
St. Johnsbury, Vt.

Agents, { FAIRBANKS & Co., 89 Water St., N. York. / A. B. NORRIS, 196 Market St. Philadelphia.

April 22, 1849. 1y*17

NOTICE TO
Superintendents of Railroads.

TYLER'S PATENT SAFETY SWITCH.—The undersigned would respectfully call their attention to his Patent Safety Switch, which from long trial and late severe tests has proved itself perfectly reliable for the purpose for which it was intended. It is designed to prevent the train from running off when the switch is set to the wrong track by design or accident. The single rail or gate switch is established as the best and safest switch for the ordinary purpose of shifting cars from one track to another, but it is liable to the serious evil of having one track open or broken when connected with the other. My improvement entirely removes this evil, and while it accomplishes this important office, leaves the switch in its original simplicity and perfection of a plain unbroken rail, connecting one track with the other ready for use.

The following decision of the Commissioner of Patents is respectfully submitted to Railroad Engineers, Superintendents, and all others interested in the subject.

P. B. TYLER.

(COPY.)

UNITED STATES PATENT OFFICE, Washington City, D.C., April 28th, 1846.

SIR: You are hereby informed that in the case of the interference between your claims and those of Gustavus A. Nicolls, for improvements in safety switches—upon which a hearing was appointed to take place on the 3d Monday in March, 1846, the question of priority of invention has been decided in your favor. Inclosed is a copy of the decision. The testimony in the case is now open to the inspection of those concerned.

Yours respectfully, EDMUND BURKE, Commissioner of Patents.

To Philos B. Tyler.

Any further information may be obtained by addressing P. B. TYLER, Springfield, Mass., or JOHN PENDLETON, Agent, 149 Hudson St., New York.

NORRIS' LOCOMOTIVE WORKS,
SCHENECTADY, N. Y.

THESE Works are in full operation in Manufacturing to order, Locomotive Steam Engines & Tenders, of the best principle and construction of material, using wrought iron heavy frames with pedestals welded thereto, and all parts of the engine made of the best wrought iron, except cylinders, pumps and boxes—obtaining greater durability, and carrying less weight over the road, than engines constructed of cast iron.

Wrought Iron Tires made any required size, and Tire Bars bent and welded with dispatch.

Chilled Wheels for Cars, Tucks and Tenders, made from the toughest iron.

Driving and Tender and Car Wheels fitted to Axles with Brass Boxes and Springs, and Railroad Machinery generally. Manufactured and for sale by

April 11, 1849. E. S. NORRIS.

CORROSIVE SUBLIMATE.

THIS article now extensively used for the preservation of timber, is manufactured and for sale by POWERS & WEIGHTMAN, manufacturing Chemists, Philadelphia.

Jan. 20, 1849.

CENTRAL RAILROAD FROM SAVANNAH TO MACON, (Ga.) 190¼ miles.

Passenger Trains leave Savannah and Macon daily at 7 a.m.
Passenger trains arrive daily at Savannah, 6 15 p.m.
" " " " Macon, 6 45 p.m.

This road, in connection with the Macon and Western road from Macon to Atlanta, and the Western and Atlantic road from Atlanta to Dalton, now forms a continuous line of 391¼ miles in length* from Savannah to Dalton, Murray county, Ga. and with the Memphis Branch railroad, and Stages connect with the following places:

Tickets from Savannah to Macon,		$5 75
" " "	Atlanta,	9 50
" " "	Augusta,	6 50
" " "	Columbus,	15 00
" " "	Opelika,†	17 00
" " "	Jacksonville, Ala.,	20 00
" " "	Talladega, / Huntsville / Decatur, Ala.,	22 00
" " "	Tuscumbia, Ala.,	22 50
" " "	Tuscaloosa, Ala.,	
" " "	Columbus, Miss, / Aberdeen, " / Holly Springs	28 00
" " "	Nashville, Tenn. / Murphreesboro' / Columbia, do.,	25 00
" " "	Memphis, do.,	30 00

An extra Passenger Train leaves Savannah on Saturdays, after the arrival of the Steam-ships from New York, for Macon, and connects with the Macon and Western railroad; and on Tuesdays, after the arrival of the Macon and Western cars, an extra Passenger Train leaves Macon to connect with the Steam ships for New York

Stages for Tallahasse and intermediate places connect with the road at Macon, Mondays, Wednesdays, and Fridays, and with Milledgeville at Gordon daily.

Passengers for Montgomery, Mobile and New Orleans take stage for Opelika from Barnesville through Columbus, a distance of 97 miles, or from Griffin thro' West Point, a distance ot 93 miles.

* The Western and Atlantic railroad will soon be completed between Dalton and Chattanooga, a distance of 423¼ miles from Savannah, of which due notice will be given.

† Head of the West Point and Montgomery railroad, on which the fare to Montgomery is about $2.

RATES OF FREIGHT FOR MERCHANDIZE GENERALLY, FROM SAVANNAH TO MACON.

Measurement Goods.—Boxes of hats, bonnets, furniture, shoes, saddlery, dry-goods, and other measurement goods, per cubic foot - - 13 cents.
Crockery Ware, in crates, boxes or hhds, per cubic foot. - - - - 10 "
Goods by Weight, 1st class.—Boxes of glass, paints, drugs & confectionary, per 100 lbs., 50 "
2d class—Sugar, coffee, rope, butter, cheese, lard, tobacco, leather, hides, copper, sheet and hoop iron, tin, hard and hollow ware, rice, boxes soap and candles, bagging, and other heavy articles not enumerated below, per 100 lbs., - - - - 45 "
3d class—Flour, bacon, liquors, pork, beef, fish, tallow and beeswax, per 100 lbs., 40 "
4th class—Mill-gearing, pig and bar iron, grind and millstones, nails, spikes and coal, 100 lb. 30 "
Barrels of beets, bread, crackers, potatoes, ice, fruit, oysters, onions, and all light bbls, each, 75 "
Oil and molasses per hhd., (smaller casks in proportion) - - - $6 00 "
Salt per sack not exceeding 4 bushels, - 50 "

☞ Goods consigned to Thos. S. Wayne, Forwarding Agent, Savannah, will be forwarded free of commission. WM. M. WADLEY, Supt.

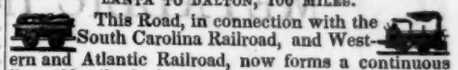
Savannah, Ga., February 24, 1850.

ENGINEERS' AND SURVEYERS'
INSTRUMENTS MADE BY
EDMUND DRAPER,
Surviving partner of
STANCLIFFE & DRAPER.

No 23 Pear street, near Third, below Walnut, Philadelphia.

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD, FROM ATLANTA TO DALTON, 100 MILES.



This Road, in connection with the South Carolina Railroad, and Western and Atlantic Railroad, now forms a continuous line, 408 miles in length, from Charleston to Dalton Cross Plains) in Murray county, Ga. 32 miles from Chattanooga, Tenn.

RATES OF FREIGHT.		Between Augusta and Dalton. 271 miles.	Between Charleston and Dalton. 408 miles.
1st class	Boxes of Hats, Bonnets, and Furniture, per cubic foot - -	$0 18	$0 28
2d class	Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs, and Confectionary, per 100 lbs.	1 00	1 50
3d class	Sugar, Coffee, Liquor, Bagging, Rope, Cotton, Yarns Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow ware, Castings, Crockery, etc.	0 60	0 85
4th class	Flour Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc. - - -	0 40	0 65
	Cotton, per 100 lbs. -	0 45	0 70
	Molasses per hogshead -	8 50	13 50
	" " barrel - -	2 50	4 25
	Salt per bushel - -	0 18	
	Salt per Liverpool sack -	0 65	
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows - -	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Company will be forwarded free of commissions. Freights payable at Dalton.

F. C. ARMS, Sup't of Transportation.

44*1y

CAR MANUFACTORY
CINCINNATI, OHIO.

KECK & DAVENPORT WOULD RESPECTfully call the attention of Railroad Companies in the West and South to their establishment at Cincinnati. Their facilities for manufacturing are extensive, and the means of transportation to different points speedy and economical. They are prepared to execute to order, on short notice, Eight-Wheeled Passenger Cars of the most superior description. Open and Covered Freight Cars, Four or Eight-Wheel Crank and Lever Hand Cars, Trucks, Wheels and Axles, and Railroad Work generally.

Cincinnati, Ohio, Oct. 2, 1848. 44tf

NICOLL'S PATENT SAFETY SWITCH FOR
Railroad Turnouts. This invention for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails; being laid down or removed without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two castings and two rails; the latter, even if much worn or used, not objectionable.

Working models of the Safety Switch may be seen at Messrs. Davenport, Bridges & Kirk's Cambridge Port, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained, on application to the Subscriber, Inventor and Patentee.

G. A. NICOLLS, Reading, Pa.

FOWLER M. RAY'S
METALLIC INDIA RUBBER CAR SPRINGS.

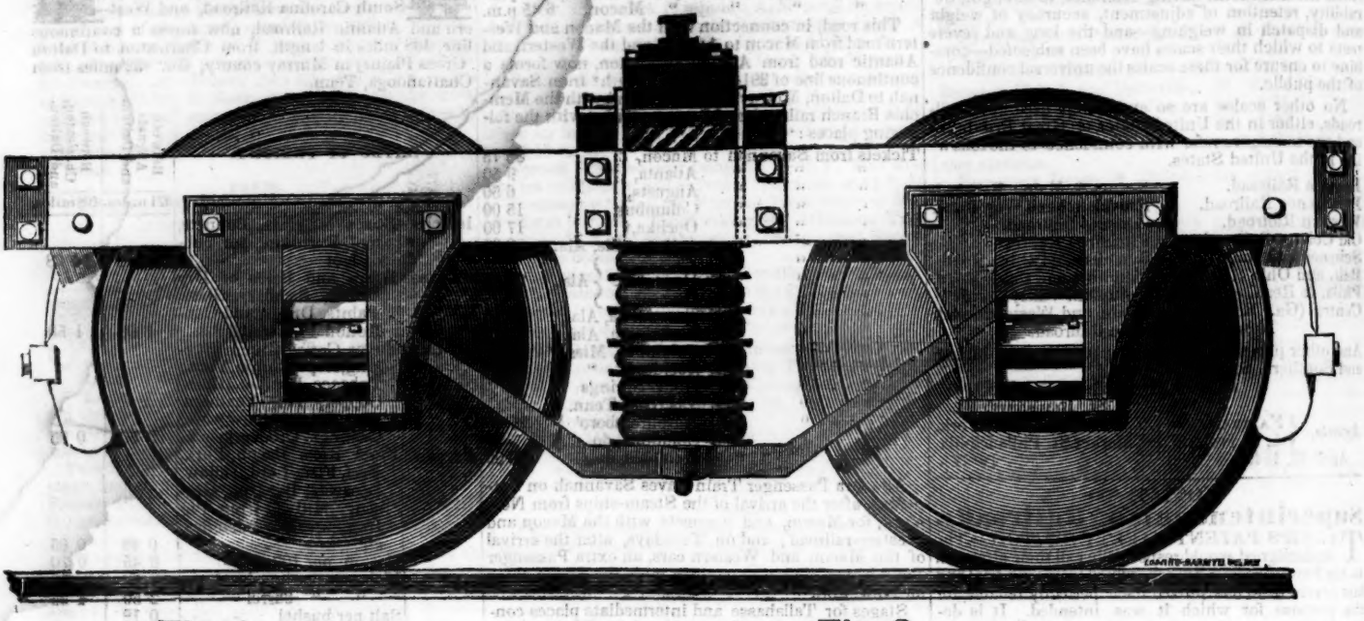


Fig. 1.

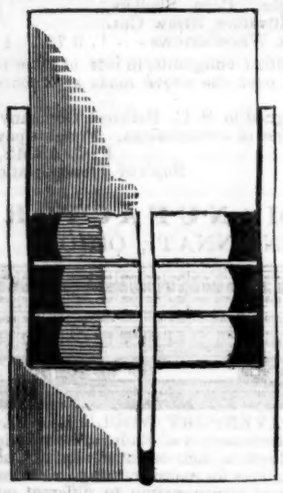


Fig. 2.

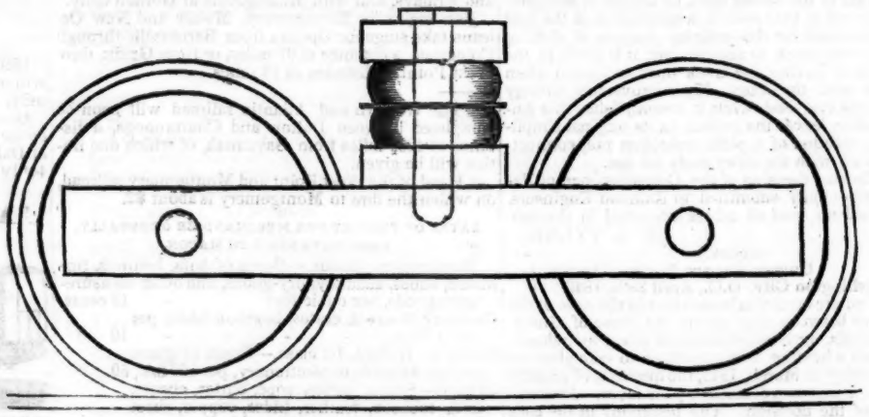
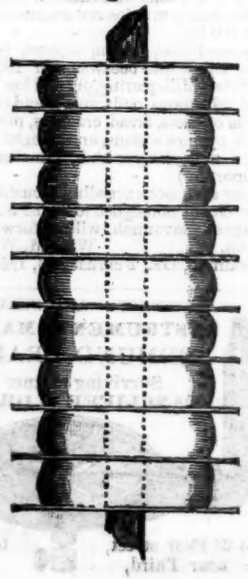


Fig. 3.



So much has been published for the purpose of misleading the public in regard to the inventorship of the India-rubber Railroad Spring, patented in the United States by Mr. W. C. Fuller, that the New England Car Company, proprietors of this invention, have deemed it proper, for the information of Railroad Companies, Car Builders and the public generally, to lay before them the facts upon which they found their claim to this invention, and to a Patent therefor.

Cut No. 1, Represents a cross section of the first model made by Mr. Tucker, under the direction of Mr. Ray, in the summer of 1844, and to which Mr. Tucker, Mr. Bradley and Mr. Bannester testify as being the model marked "B."

Cut No. 2, Represents the model made in 1845, to which Mr. Osgood Bradley and Gen. Thos. W. Harvey have testified.

Cut No. 3, Represents a rough sketch made by Mr. Ray in 1844, which he gave to a man about departing for England to take out some patents, who promised to write to Ray after his arrival in that country—which promise he has probably forgotten.

Mr. W. C. Fuller, of England, patented the above Spring in that country on the 23d October, 1845. He filed his enrollment April 23d, 1846, and on the 22d October, 1846, he took out a patent in the United States under the title, "For Improvement in Railway Carriages," when the improvement consisted in the spring, and not in the carriage.

The reader will perceive by the annexed testimony, that the India-rubber Railroad Car Spring was invented by Mr. Ray about two years previous to the date of Mr. Fuller's enrollment.

The Depositions are omitted for want of room, but will be published in full in the course of a few weeks.

AMERICAN RAILROAD JOURNAL.
PUBLISHED BY J. H. SCHULTZ & CO.
ROOM 12, THIRD FLOOR,
No. 136 Nassau Street,
NEW YORK.

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